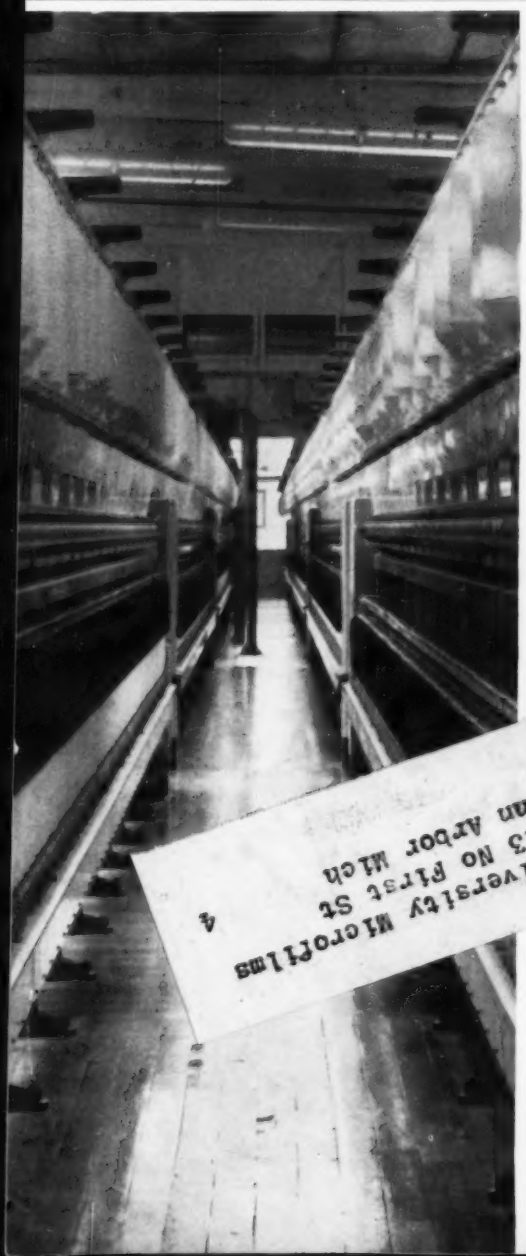
November 1961

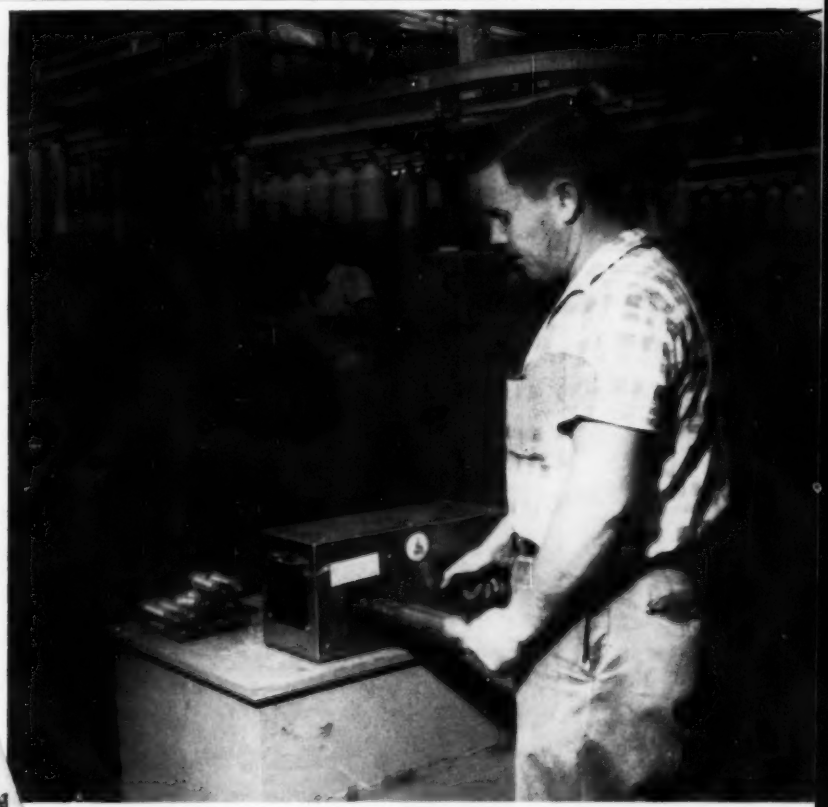
- What magnetic top rolls can do
- Seaming vs looping
- 1-bath way to no-shrink wool
- Boost spinning output

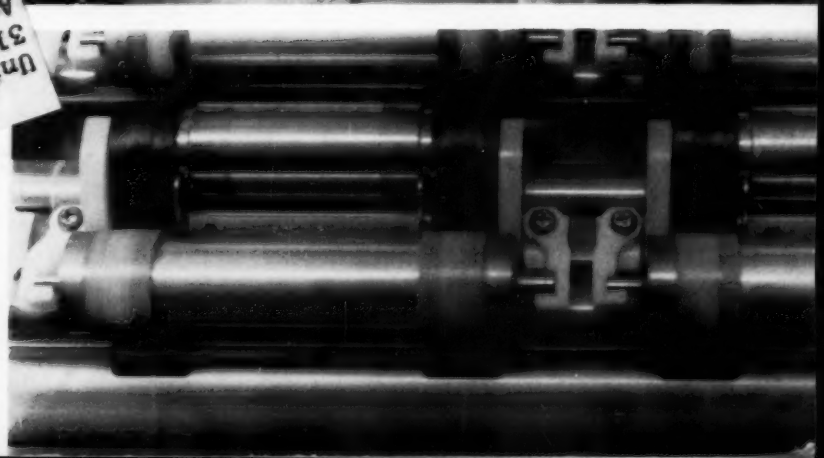
Complete contents on page 4

Textile Industries

a W. R. C. Smith publication formerly "Cotton" fifty cents per copy







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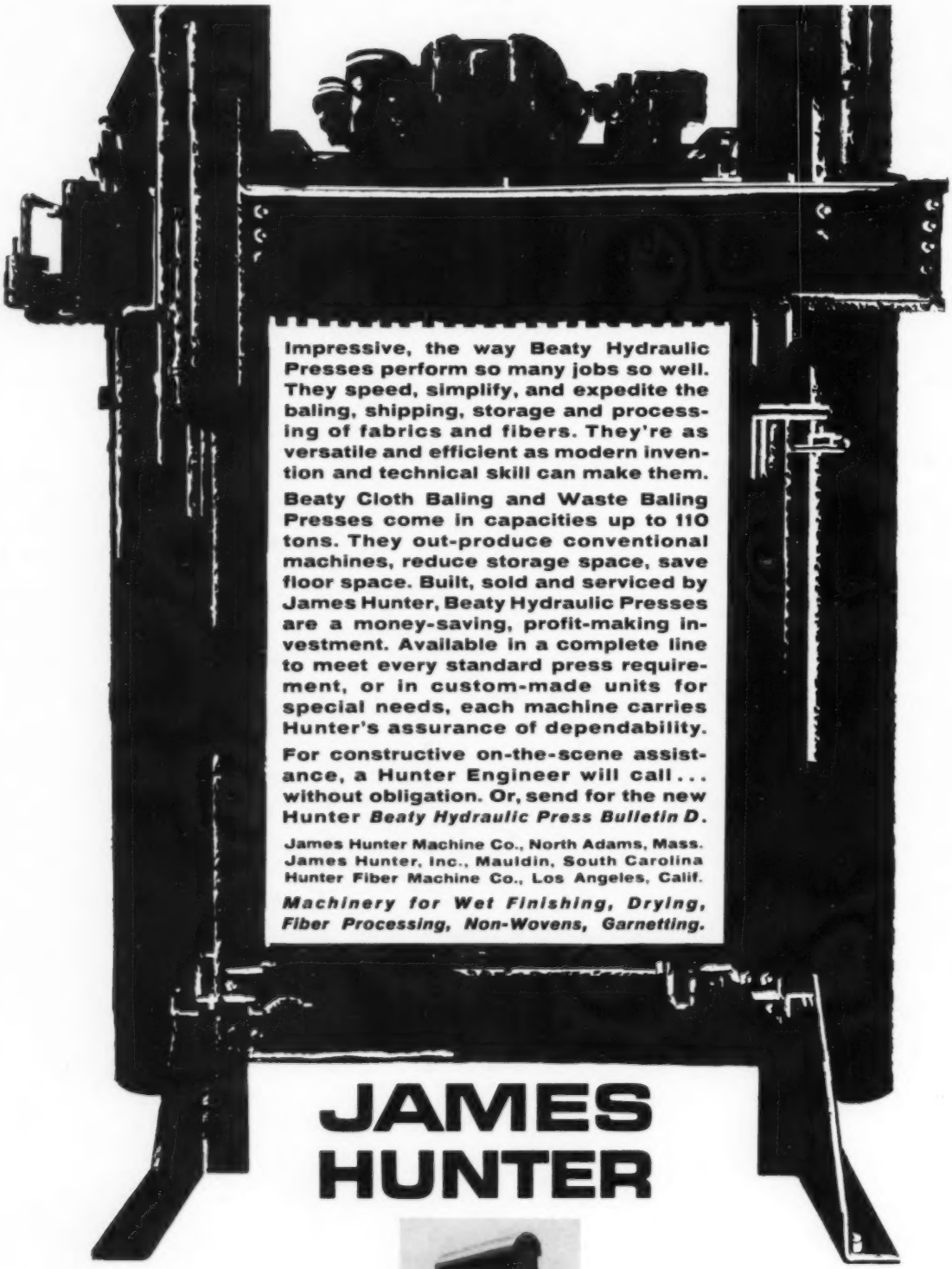

Impressive, the way Beaty Hydraulic Presses perform so many jobs so well. They speed, simplify, and expedite the baling, shipping, storage and processing of fabrics and fibers. They're as versatile and efficient as modern invention and technical skill can make them.

Beaty Cloth Baling and Waste Baling Presses come in capacities up to 110 tons. They out-produce conventional machines, reduce storage space, save floor space. Built, sold and serviced by James Hunter, Beaty Hydraulic Presses are a money-saving, profit-making investment. Available in a complete line to meet every standard press requirement, or in custom-made units for special needs, each machine carries Hunter's assurance of dependability.

For constructive on-the-scene assistance, a Hunter Engineer will call . . . without obligation. Or, send for the new Hunter *Beaty Hydraulic Press Bulletin D*.

James Hunter Machine Co., North Adams, Mass.
James Hunter, Inc., Mauldin, South Carolina
Hunter Fiber Machine Co., Los Angeles, Calif.

Machinery for Wet Finishing, Drying, Fiber Processing, Non-Wovens, Garnetting.

JAMES HUNTER

NOT A SPOT—THANKS TO MILLCOT®!

MILLCOT anti-spatter oils prove their worth at inspection time — in yards and yards of spotless production. By clinging closely to fast-moving parts, they reduce oil stains on fabric to a minimum. Millcot "K" grades are tacky to prevent excessive drip and to reduce oil consumption on looms and other textile machinery. Millcot DX, an ideal top-roll bearing oil, is not stringy and does not form "threads" which may stain yarn during oiling. Effective anti-wear agents maintain lubrication under heavy pressure and shock loading in looms.

NEBULA® EP multi-use grease replaces many single-purpose lubricants. It does an outstanding job in the hot, heavily loaded bearings of slasher, dryer, and calender rolls; provides extreme-pressure protection for loom gears and bearings.

Esso Sales Service Laboratories are always ready to help solve your lubrication problems. Call your experienced Esso Representative, or write to us at 15 West 51st Street, New York 19, New York.

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INCREASED SPEEDS

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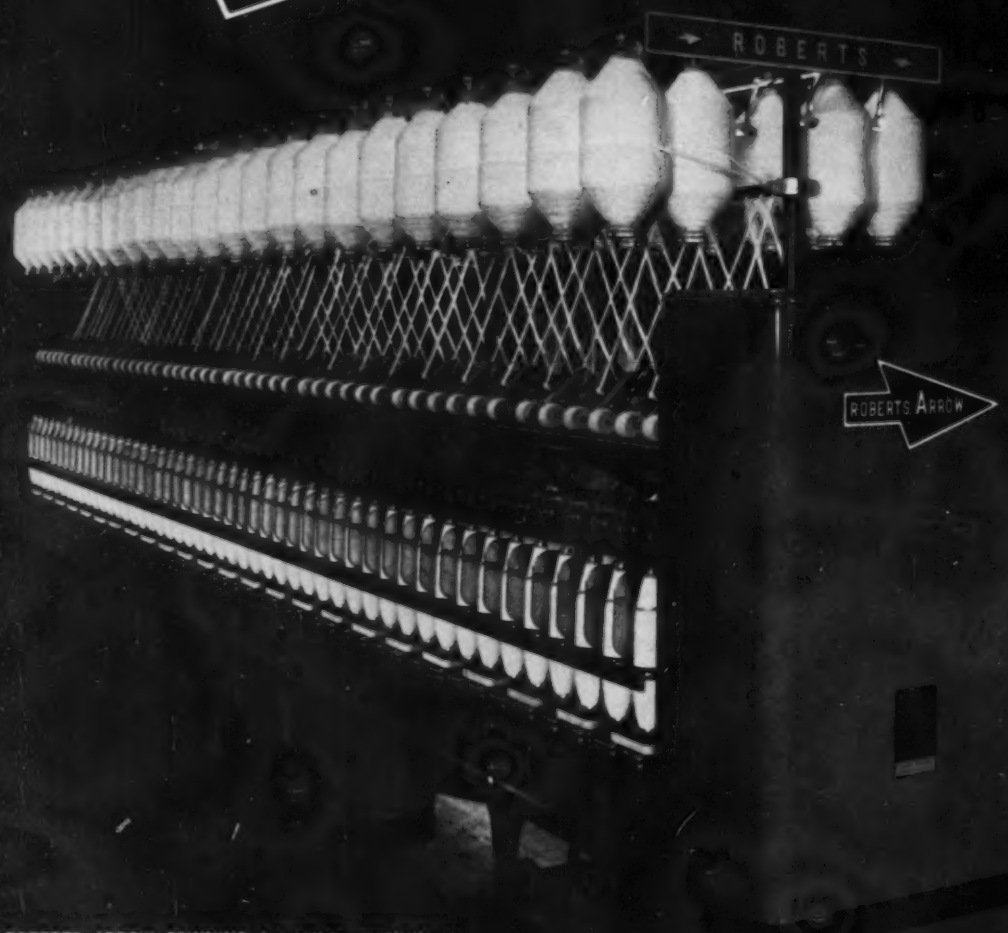
BEST YARN QUALITY

RUGGED SIMPLICITY

ROBERTS ARROW



ROBERTS ARROW SPINNING for cotton, synthetic or worsted systems is available in all ball-bearing, rugged long-life frames of 25-inch or 36-inch width. More than 1,500 Arrow Frames are in mill operation.

ROBERTS COMPANY

SANFORD, NORTH CAROLINA

For further information use Handy Return Card, Page 167

ROBERTS ARROW SPINNING.. AN INVESTMENT FOR PROFIT

Profit is the ultimate motive behind the purchase of new spinning or any other capital equipment. And profit essentially depends upon the spread between selling price and manufacturing costs.

In as keenly a competitive industry as textiles, profits are generally determined not so much by high prices but more by high quality coupled with low costs so that products of superior saleability, or value, can be offered.

In yarn spinning, low costs with high quality depend mainly on Versatility, Productivity, and Dependability.

The answer: Roberts Arrow Spinning . . . An Investment for Profit.

CUTS COSTS AND RAISES QUALITY 10 WAYS

➨ **INCREASED SPEEDS!** 20% to 50% higher, even up to 15,000 r.p.m. spindle speed, achieved by dynamic balancing of all components, plus maximum use of ball bearings.

➨ **UNMATCHED VERSATILITY!** Changes in fiber, yarn number, draft, twist and bobbin build are quickly accomplished. Coarse or fine yarns from 2s to 120s count. Choice of drafting systems: FC for short or long staple cotton plus staple synthetics to 2"; GS for synthetic fibers from 1½" to 3" or worsteds to 6½"; GW for all synthetic fibers, worsteds or blends up to 8" length.

➨ **HIGH DRAFTS!** A broad range of drafts from 10 to 60 is successfully handled on new Arrow Spinning, eliminating roving processes, improving fiber blending, increasing fiber control and upgrading quality.

➨ **HIGHEST YARN QUALITY!** New Arrow Spinning consistently spins stronger, more even yarns. Superior yarn quality with consistency from bobbin to bobbin is assured by simple, gadget-free drafting systems which provide effective fiber control and uniform weighting on all spindles.

➨ **REDUCED CLEANING, MAINTENANCE!** Elegantly functional, new Arrow Spinning has been designed and engineered for cleaner, trouble-free operation. Simplification of components, fewer parts and streamlined design provides reduced cleaning, more quickly done.

➨ **FULLY BALL BEARING EQUIPPED!** in all moving, turning, rotating and oscillating parts for smooth, dependable performance with substantially lowered electric power consumption. Lubrication requirements are eliminated or minimized.

➨ **SPACE SAVING WIDTH!** Only Arrow Spinning is available in both 25-inch and 36-inch widths. The 25-inch space-saving frame permits installation of five machines in the space formerly occupied by four, increasing spindleage and production by 25% in the same mill area.

➨ **BIGGER, HEAVIER PACKAGES!** Arrow Spinning puts more yarn on the bobbin, tighter wound due to better yarn tension through its frame geometry. Larger rings, longer bobbin lengths and improved bobbin build increase package size and weight, resulting in longer doff cycles plus substantial savings in winding with less knots.

➨ **RUGGED CONSTRUCTION!** and close precision of manufacture and assembly assure quality and long life of Arrow Spinning. Refined and streamlined, free of gadgetry and frills, and engineered for peak performance, new Arrow Spinning features many technological improvements contributing to better, less costly spinning.

➨ **ATTRACTIVE LOW PRICE!** The superior operational economy and productivity of new Arrow Spinning, and its new low investment cost, provide for a quick return on investment.

Installation of Arrow Spinning Frames

ROBERTS COMPANY
SANFORD, NORTH CAROLINA

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Textile Industries

The Textile Management

COTTON AND MAN-MADE FIBERS

67 What magnetic top rolls can do
Russell Manufacturing Co. gives them an unqualified OK.

71 Metallic clothing damage kayoed!
A stop motion for cards guards against choke and tramp metal damage.

76 From behind the nonwoven curtain
Report on nonwovens symposium held in Czechoslovakia.

81 Always hungry for waste
Cotton mill finds expanded synthetic clearer covers have great waste-holding power, long life.

84 Gauges in Draper loom maintenance
Article 13—Continuation of discussion on keeping the transfer motion working correctly.

89 Doffer-spinner work loads
This system for setting them allows for interference automatically.

97 Boost spinning output
Using long-staple cotton? High-elongation fiber is your best bet for increasing production.

152 Tape helps reduce finished cloth inventory

153 A way to cut into sample weaving costs

KNITTING

143 Better way to gauge a sinker cam
Any fixer can use this dial indicator on machines for ladies' seamless hosiery.

145 Seaming vs looping as a mill man sees it
". . . there will always be looping, and seaming is here to stay if buyers are willing to gamble and consumers don't balk."

152 Paper tube removes another knitting hazard

November 1961
Volume 125
Number 12

and Engineering Journal

MANAGEMENT

73 2 bogies: imports and automation
NTA members explored them at annual meeting.

82 Co-ops can help you grow
Co-operative students' grades are consistently high. How can you best use knowledge they bring to the mill?

88 Modern textile management
Article 9—Optimum lot size formula balances set-up and inventory costs.

95 Training for survival
Stymied by lack of trained personnel? Maybe this is the answer.

22 TEXTILE INDUSTRIES moves to a new home

87 1960 mill spending highest since 1951

148 Synthetics production last year set record

WET PROCESSING

109 One-bath process for no-shrink wool
on regular finishing equipment, using a mixture of two resins.

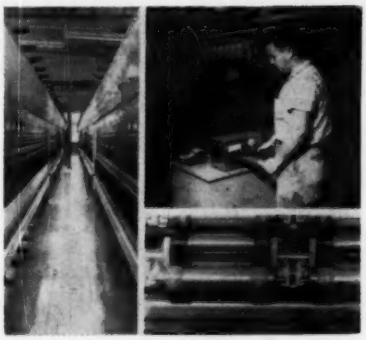
130 Chemists-colorists met in Buffalo
AATCC discussed resin finishing, stream polution, saving caustic soda, and high-temperature dyeing.

142 New dyes and chemicals

DEPARTMENTS

9	Shorts and remnants	44	Mill notes
11	Personal notes	151	How others manage
17	News in brief	157	New product parade
25	Technical developments	169	Free booklets
29	Executive views	178	Supplier notes
31	Future events	184	Index to advertisers

THIS MONTH'S COVER



Russell Manufacturing Co., Alexander City, Ala., has 32 spinning frames with magnetic top rolls. They like the system so well they've ordered 16 more frames.

IN TI NEXT MONTH

For the knitter

■ TOWARD THE END of October, more than 230 exhibitors from 11 countries displayed their wares at the International Knitting Machinery and Accessories Exhibition at Manchester, England. Next month TI's correspondent in England will bring you an on-the-spot report from the show, covering all the highlights of interest to American knitting mills.

For the tufter

■ TUFTED BLANKETS have been creating quite a stir in the trade recently. Now one of TI's editors has visited E. T. Barwick's plant at Knoxville, Tenn.; his report next month will give you all the details of this development in broadening the tufted field.

Plus . . .

■ THE SECOND article in James Howden's series on nonwoven fabrics will appear in TI for December. This one will cover the various methods for producing nonwovens.

For the cotton mill man there'll be an article on three-process drawing, one on cleaning looms, and a look at the farthest-south weaving mill in the U.S.

For the dyer, there's something new on fiber reactives for nylon. And the final article in Norbert Enrick's series, "Modern Textile Management," covers financial and administrative control charts.

Rieter's ring spinning frame G 4 is the most economical solution for large cops and the whole count range in cotton yarn spinning. The outstanding feature of this machine is the movable spindle rail, which ensures a practically constant balloon during the formation of the cop and thereby a compensated yarn tension, and permits maximum operating speeds. The automatic underwinding and stopping device simplifies operation and enables cops to be produced with uniform yarn length. The guide saddle drafting arrangement with double aprons and pneumatic weighting of the ball-bearing top rollers supplies better yarn with higher drafts.

Rieter's ring spinning frame G 4 meets the highest requirements and greatly contributes towards improving the productivity and thereby the competitive ability of a spinning mill.

Please ask for our special pamphlet G 4.

Rieter solves your spinning problems; for all cotton and staple fibres = ring spinning frame G 4

VSM Swiss Textile Machinery Group

RIETER MACHINE WORKS LTD., WINTERTHUR, SWITZERLAND
AMERICAN RIETER COMPANY, INC., WEST CALDWELL, N.J.
Service Office: Greenville, S.C.

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Two new solutions to the profit squeeze—carboxylic PLIOLITE Latices

You save 3 ways with new PLIOLITE Latices 440 and 460. First, each is unusually versatile—can be used in several applications for sizable savings in purchasing and handling. Second, each accepts high pigment loading for more economical compounds. Third, each is easy to process for extra operational savings.

Outstanding adhesion and resistance to aging are other important advantages of these new carboxylic modified latices. They also exhibit excellent film strength, high mechanical and chemical stability and good ultraviolet resistance.

It will pay you to investigate the new PLIOLITE Latices, whether you use latex in carpet backing, scrim adhesives, upholstery backings, nonwoven fabric binders or printing inks. For maximum resistance to solvents and yellowing, look also to the new carboxylic nitrile latex – CHEMIGUM 520. Samples and technical data are yours by writing Goodyear, Chemical Division, Dept. K-9439, Akron 16, Ohio.

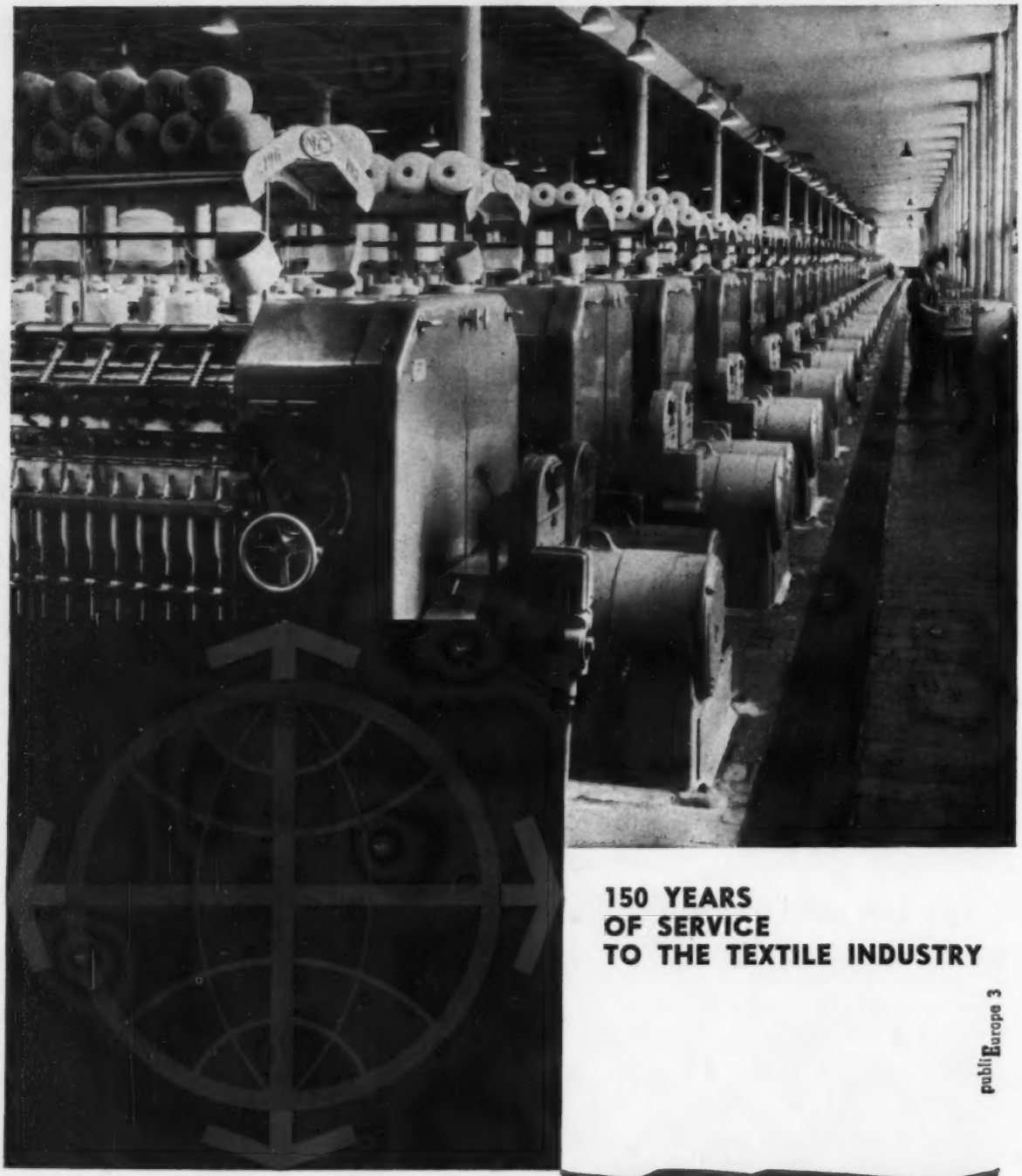
Lots of good things come from

GOODYEAR

CHEMICAL DIVISION

Pliolite, Chemigum—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

All over the world



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For further information use Handy Return Card, Page 167

SHORTS & REMNANTS

Liked AATCC Editorial

"Please accept my congratulations on the most excellent editorial in the September issue of TEXTILE INDUSTRIES, entitled 'AATCC Makes a Wrong Move.'"

T. R. SMITH
Vice-President
Wiscassett Mills Co.
Albermarle, N.C.

"I have just read the article in the September issue of TEXTILE INDUSTRIES regarding AATCC, and wish to say that this article expresses my sentiments exactly . . . It seems that most of these matters are kept so quiet that the membership no longer knows what is going on."

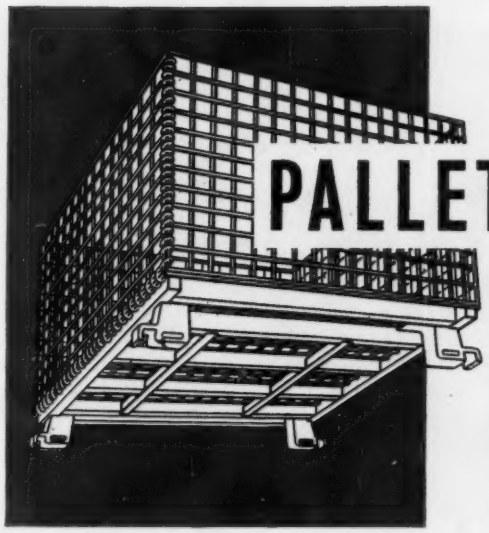
FRED V. TRAUT
Supt. of Processing
Globe Dye Works Co.
Philadelphia, Pa.

"'AATCC Makes a Wrong Move' is the subject of an editorial on pages 27-28 of TEXTILE INDUSTRIES for September 1961. This is not the only wrong move that AATCC has made since it became too unwieldy for a 64-man council to manage in twelve hours of meetings per year. The only basic correction is to reform the organization of the management.

"The editorial in TEXTILE INDUSTRIES correctly says, 'About 30% of the membership work for the mills. Most of the rest are suppliers of one sort or another.' The majority of these suppliers would be happy to follow the leadership of the mill minority if that leadership were clearly expressed."

SYDNEY M. CONE, JR.
Vice-President
Cone Mills Corp.
Greensboro, N.C.

These gentlemen are all present or former officers of AATCC: Mr. Smith is a past president; Mr. Traut is a past vice-president; and Mr. Cone is a councilor representing the Northern Piedmont Section of the Association. And we are glad to report that AATCC's Council has rescinded its decision to move Association head-



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engineered containers for the . .

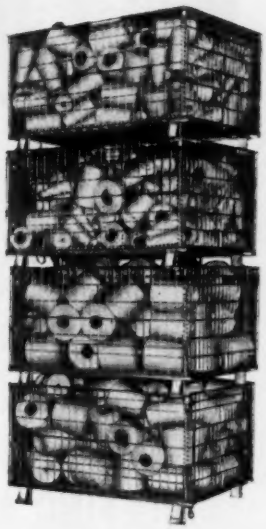
TEXTILE INDUSTRY

USP Palletainers are readily available in a broad range of standardized sizes and types to meet practically every Textile Industry requirement or application.

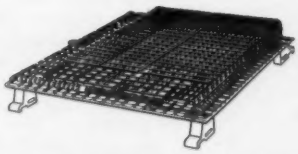
And, Textile Palletainers offer the obvious advantages of modern container, unit handling methods, the safety of sturdy steel wire mesh under standard or special protective finishes—plus the ease and simplicity of space-saving storage and rapid movement of unitized loads—more economically.

Already . . . Palletainers have revolutionized former handling methods for in-work storage of cones, spools, spindles, quiller bobins—even delicate yarns in processing phases.

Why wait? Simply phone, wire or write today and you can try Palletainers in your own plant—and see for yourself how they streamline processing, storage, interplant transport and shipment.



Textile Palletainers offer safer, higher stacking. Save more valuable floor space. Contents always visible.



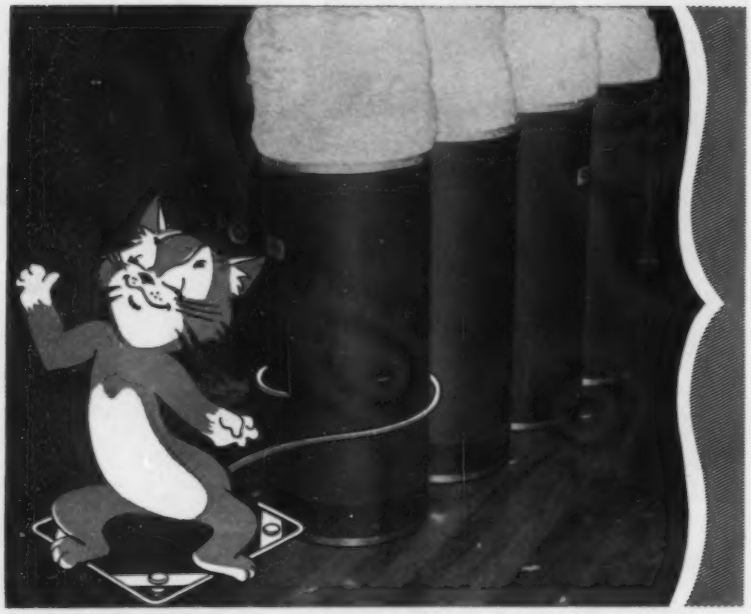
Palletainers "Flat-Fold" features save storage space—lowers return freight costs.

Palletainers with gates offer complete content accessibility even when stacked. Stacking saves valuable floor space.

SPECIAL OFFER
You may try USP Palletainers right in your own plant on a 60-day money-selling basis. Your obligation is freight only.

USP UNION STEEL PRODUCTS CO.
Albion, Michigan

Delicate yarns in plastic covers in Palletainers may be stored indefinitely—always visible, accessible, safe and clean. A wide range of Palletainer snap-in liners are available.



SOUTHERN STATES ALLEY-SKAT* SLIVER HANDLING SYSTEM SPEEDS DOFFING AND CONVEYING BIG CANS

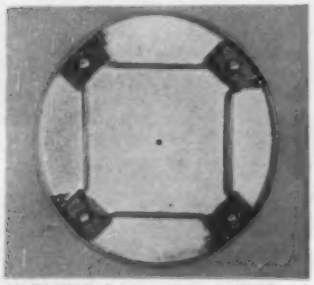
As mills convert to large diameter coilers—with cans weighing up to 12 times more than those of only a few years ago—doffing and moving heavier cans presents a problem. Yet it can be solved simply and economically with Southern States' exclusive ALLEY-SKAT system.

This unique system consists of a can dolly easily affixed to the bottom of any size can, a specially designed cantable, and latches to permit train-like movements of several cans by one man. The ALLEY-SKAT system can be used on cans 16 through 30 inches.

On new coilers, Southern States supplies the ALLEY-SKAT cantable at no additional cost. The only extra cost is for the ALLEY-SKAT dolly and latches for the system.

Get full information on this unique handling system from your Southern States representative or write for Bulletin 502.

Patents 2,816,328; 2,823,924; 2,908,945; 2,916,780; 2,920,902; 2,936,496; 2,950,021. Others pending.



ALLEY-SKAT Dolly mounts to inside of can rim. Dollies are made of finest materials. Heavy-duty unit shown is for 24" and 30" cans.

Cantable adapter plate is available as standard equipment on Southern States Coilers at no extra charge.

Doffing of large, tightly packed cans is quickly and easily accomplished. No lifting required.

*TRADEMARK

SOUTHERN STATES

HAMPTON, GEORGIA

(from page 9)

quarters to New York. There is every reason to believe that when the Council considers another location, North Carolina's Research Triangle will be favored, as we recommended in our editorial.

Training Loom Fixers

"I am inquiring about the booklet titled 'Draper Loom Fixing' written by Ben H. Crawford . . . a reprint of a series of articles published in TEXTILE INDUSTRIES."

J. M. COLLINS
Training Director
Monarch Mills
Union, S.C.

This is still available with a subscription to TI.

Tried Clairol?

Textile Research Institute reports receiving a request for information about an organic dyestuff that may be fed to colorless peacocks "in order to increase their self-esteem."

Says TRI, "The Institute staff answers questions on almost every topic, but when it comes to peacocks we are out in left field. If any of our readers have suggestions for delicious dyes, which a peacock would enjoy and which would improve his plumage, let us know."

► It took three pages for American Society for Testing Materials to tell us that they've changed their name to American Society for Testing *and* Materials. Question: How many pages will it take if they change their name to American Society for Materials and Testing?

Dye-Machine Pitting

"We are very much interested in the article 'Some Effects of the Pitting of Dyeing Machine Metals' which appears in the September issue . . . would like to obtain six copies . . ."

GUY E. LOWE
Chief Engineer
Coats & Clark, Inc.
Toccoa, Ga.

Correction

Our adding machine fouled us up in totaling one of the columns in the table "World Survey of Automatic Screen Printing Machines," which appeared on page 57 of our September issue. A sharp-eyed reader brought to our attention that the number of machines in the world in 1961 totals 774, and not 806 as we had it. Perhaps our adding machine hasn't gotten used to the fact that we are no longer at 806 Peachtree.

For further information use Handy Return Card, Page 167

PERSONAL NOTES

Dr. Hans-Kietrich Weigmann has joined the staff of Textile Research Institute as senior scientist on the TRI wool research program. **Dr. Dusan Prevorsek** has been named senior scientist on the Institute's fiber fatigue project. **Leonard Lifland** has been appointed senior scientist on the project on the resilience of chemically modified cottons. **Dr. Takashi Shibukawa,** physical chemist, will conduct basic research on the structure and properties of synthetic fiber-forming polymers.

Robert E. Wooten, a principal officer of Browns Hosiery Mills, Inc., has launched a handmade brick business to produce brick as they were made in the early 18th century.

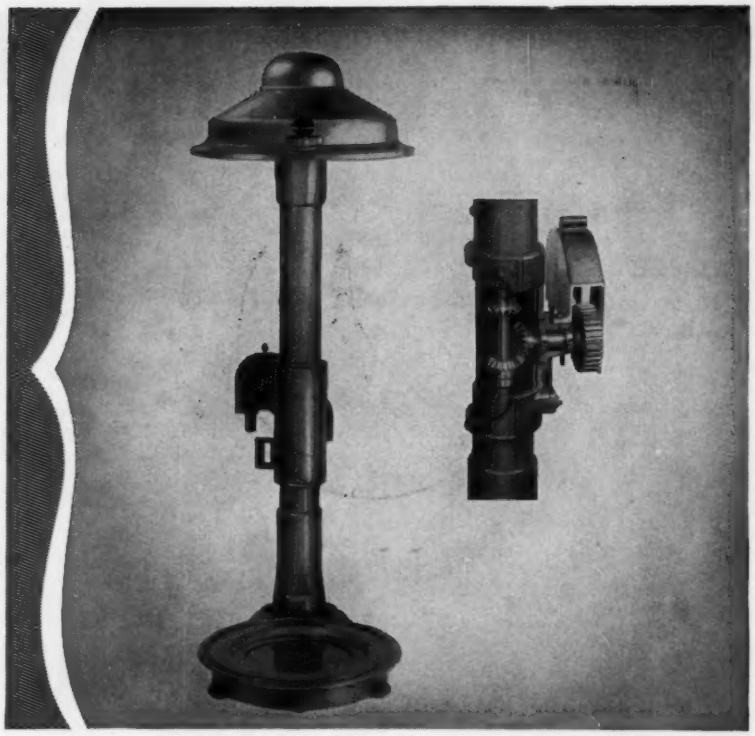
Justin M. Robinson has been appointed plant manager of the Albany, Ga., tufting division of A. & M. Karagheusian, Inc. **Eugene C. Briggs,** formerly assistant plant manager of production, has been named assistant plant manager.

Mr. McCauley
Riegel

Mr. Robinson
Karagheusian

William H. McCauley, of the methods and standards department of Riegel Textile Corp., Ware Shoals division, has been advanced to senior industrial engineer in the grey mill. Mr. McCauley will be in charge of the waste control program, the quality control, and methods and standards programs. * * * **Henry Rider** has been promoted to assistant overseer of weaving at the Trion, Ga., division. **Mack Hankins** has been promoted to assistant overseer of dyeing.

Robert W. Sayles, Jr., has been elected president of Baltic (Conn.)



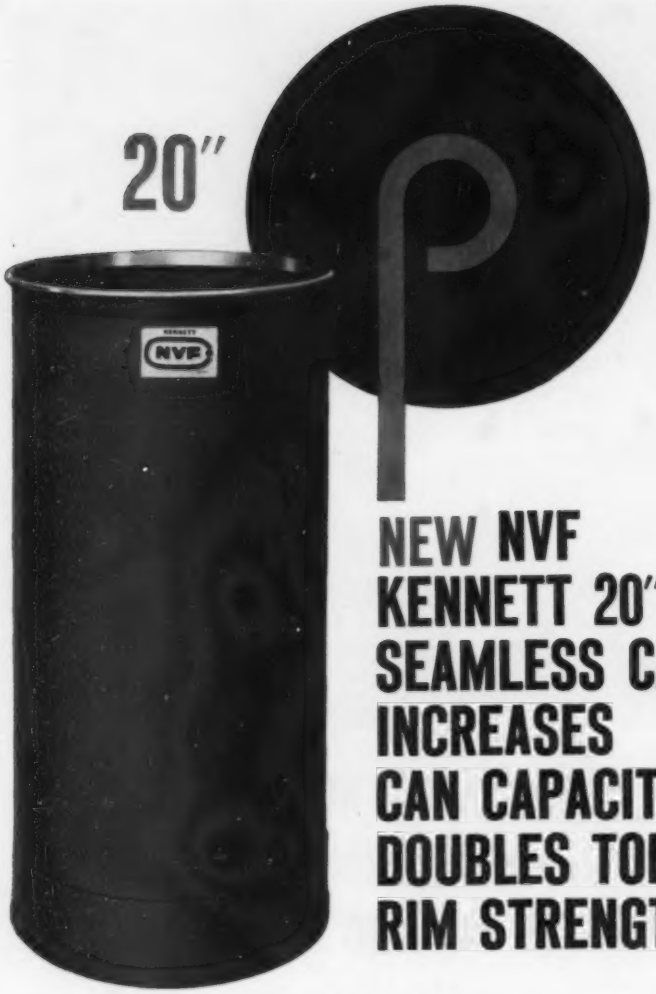
SOUTHERN STATES' NEW COILER LINE HAS ALL ENGINEERING AND DESIGN FEATURES WANTED BY MILL MEN

To provide mills with a premium-quality coiler, every engineering and design feature wanted by mill men has been included on the new Southern States Coilers.

A new center adapter (see cutaway view above) permits the stand, head, and base to swivel as a unit within the adapter collar. The coiler may thus be offset for can diameters up to 20 inches and still maintain a straight gear drive take-off for coilers of all makes.

Southern States Coilers are designed for direct attachment to any make of card, left or right hand. Installation is rapid and economical. Other outstanding features of the Southern States Coiler include: ball bearing throughout—head, shaft, cantable ... cut tooth gears throughout ... tubular steel stand ... precision-ground calender rolls ... self-aligning pillow blocks on upright and calender roll shafts ... fully adjustable can table ... quickly detached coil spring roll-loading device ... and many others fully described in our Technical Bulletin 205, available from your Southern States representative or by mail direct from us.

SOUTHERN STATES
HAMPTON, GEORGIA



NEW NVF KENNETT 20" SEAMLESS CAN INCREASES CAN CAPACITY DOUBLES TOP RIM STRENGTH

This all-new seamless NVF-KENNETT '20' increases payload per can and lengthens can life, thanks to its *all-new double strength top rim!* Furnished in lengths up to 48".

NVF Lab tests prove it's more than twice as strong as conventional top rims. Newly designed, the 2", 14-gauge galvanized top rim is rust-resistant, smooth, will remain "in-round" through years of hard mill abuse.

FREE: Actual cross-section sample of new top rim, plus prices and data. Write on your Company letterhead to—

NVF

KENNETT DIVISION
NATIONAL VULCANIZED FIBRE COMPANY
309 BUILDERS BLDG. • CHARLOTTE, N. C.
BOX 311 • WILMINGTON, DELAWARE

PERSONAL NOTES

(from page 11)

Mills Co. Other officers elected were: executive vice-president—**Howard P. Derrickson;** treasurer—**William G. Marsden;** assistant treasurer—**Earl A. Philipp;** secretary—**Hayard T. Parsons.** Howard P. Derrickson will be in charge of the operation of the mill and the management of the property of the company.

Dr. A. J. Farnworth, inventor of the "Si-Ro-Set" process for imparting permanent creases to pure wool trousers and durable pleats to women's wool skirts, has been appointed manager of the technical development section of the Australian Wool Bureau.

At the fall meeting of the South Central section of the American Association of Textile Chemists and Colorists held in Chattanooga, Tenn., recently, **Lowell Shive,** Arnold, Hoffman & Co., Inc., was elected chairman. Other officers elected were: vice-chairman—**Jack Welborn,** Riegel Textile Corp.; secretary—**Arthur Williams,** E. I. du Pont de Nemours & Co., Inc.; treasurer—**Robert Ingram,** Lebanon Mills.

Richard Sullivan has been named director of engineering for Cone Mills Corp., succeeding **George W. Nance,** who has assumed duties as general manager of Olympic Chemical Co., a subsidiary.

H. R. Hoke has been named plant manager of Aragon (Ga.) Mills, a division of United Merchants and Manufacturers, Inc. Mr. Hoke succeeds **C. T. Reed,** who has been transferred to the Greenville, S. C., office of the fabric production division.

Ernest C. Walker has been promoted to assistant overseer in charge of the third shift weaving operations at the Opp (Ala.) Cotton Mills.

W. Haden Camp and **F. E. Bobo, Jr.,** have been appointed vice-presidents of Chadbourn-Gotham, Inc. Mr. Camp is general manager of the Carwood division and Mr. Bobo is in charge of all knitting plants, both seamless and full-fashioned.

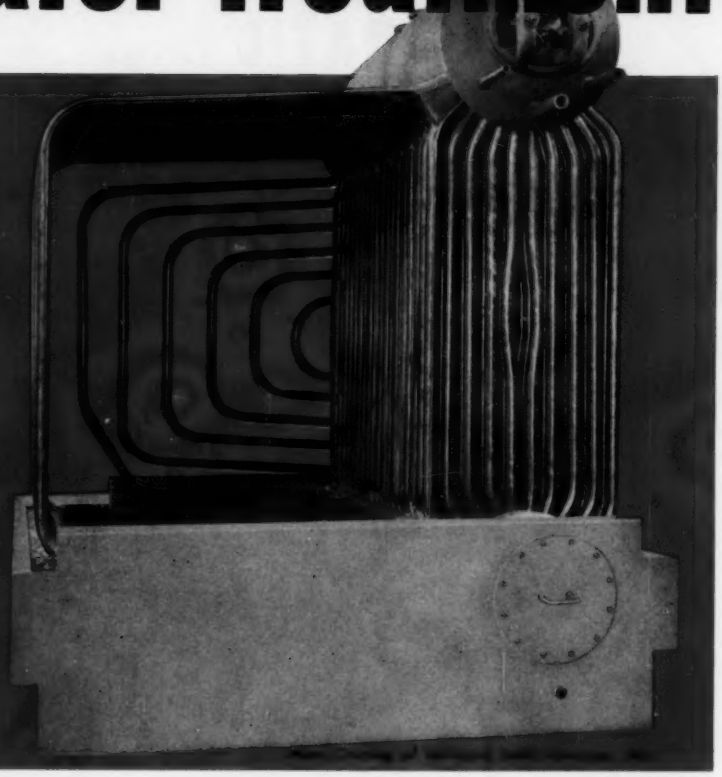
O. L. Moore, Jr., has joined the faculty of the School of Textiles at North Carolina State College, Ra-

Continued on page 36

For further information use Handy Return Card, Page 167

anco water treatment

prevents efficiency fade-out... protects equipment against scale, rust, corrosion



The water used in heat exchange systems can be the cause of serious damage if precautions are not taken in time. Impurities in water cause rust, corrosion, scale, and sludge build-up. The best and most economical protection you can give your boilers, water heaters, tanks, condensers, air washers, spray heads, and similar equipment is regular use of Anderson water-treating chemicals.

BRAXON—Liquid formulas remove and prevent scaling and corrosion caused by hard water deposits in boilers; also check foaming and carryover in feedwater.

FLAKO—Dry formula . . . in fine granules or powdered form . . . does basically the same job as Braxon in boilers. Flako also available with anti-foaming agents.

KLEERFLO—Colorless, odorless, non-toxic liquid stops corrosion, scaling in heaters, tanks, pipes, valves, and similar equipment. Kleerflo does not restrict use of water for sanitary or industrial purposes.

ALKASTEEM—The corrosion in steam and condensate lines caused by reaction of bicarbonate decomposition and dissolved carbon dioxide in boiler feedwater is kept under control by this volatile amine. Circulates by passing from boiler with steam, returning through condensate lines.

SLUDGIT—Designed to dissolve and prevent sludge in fuel oil storage tanks. Liquid treatment removes condensation deposits, and keeps strainers, burners, pipe lines free of corrosion and operating at peak efficiency.

OX-GEM—Sodium sulphite base acts on dissolved oxygen in boiler water to produce non-corrosive sodium sulphate. Assures protection from pitting, corrosion, and accumulation of deposits elsewhere in the system.

COOLEX—Inexpensive but highly effective, formula protects metal surfaces in cooling water systems, air washers and circulating systems against scale, corrosion, and pitting damage.

RUSTEX—Pipe lines, tanks, spray heads, and other components of humidifying systems are kept free of corrosion and scale by this colorless, tasteless formula. Harmless to personnel, it is introduced into system by proportioning pump, or other convenient method.

Write today and request an analysis and recommendation on your plant's water treatment by an Anderson service engineer. There is no cost or obligation to you.

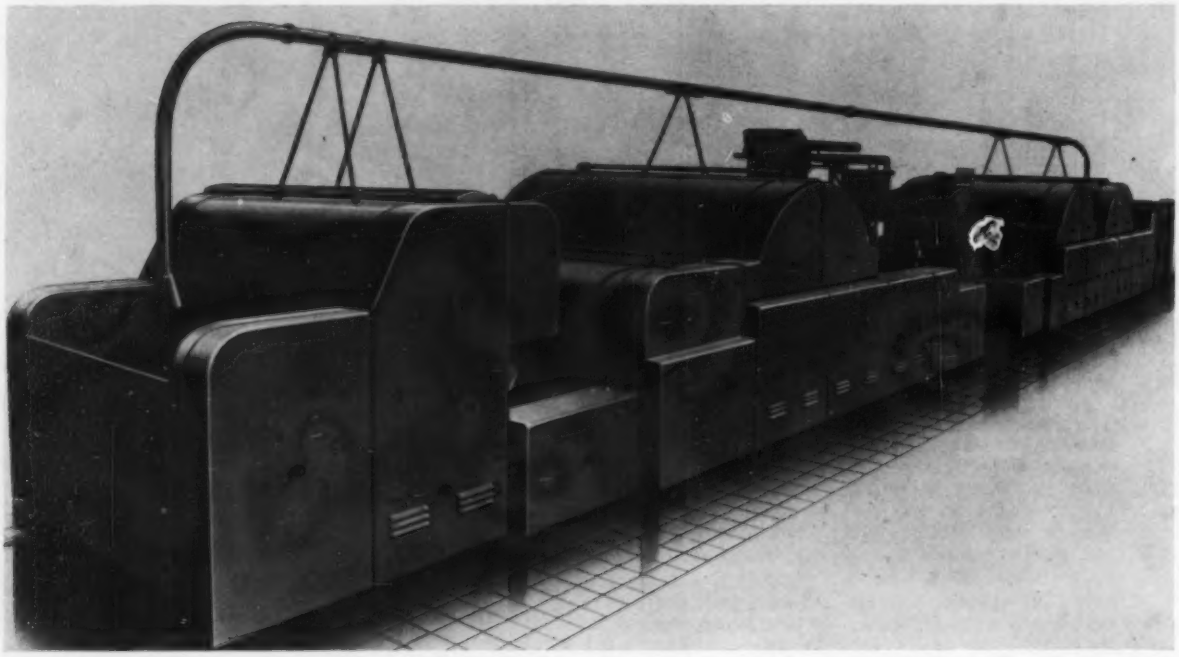
SPECIALISTS IN MAKING WATER BEHAVE

Anderson Chemical Company, INC.
Macon, Ga., Box 1424 • Phone Sherwood 5-0466
Memphis, Tenn.: Box 2432, DeSoto Station • Phone: BRoadway 2-2806
Dallas 7, Texas: Box 10444, Industrial Station • Phone: RIverside 8-7080

AUTOMATIC THREE CYLINDER WOOLEN CARDS TYPE CR-34

A PRODUCT OF BEFAMA

formerly Josephy, Bielsko, maunfacturers of outstanding textile machinery since 1851



MAIN FEATURES:

- **40% greater production than similar card sets because of greatly increased carding intensity**
- **Stepless speed controls assure maximum carding efficiency for all stocks**
- **Synchronized electric drive**
- **All parts fully enclosed for complete safety**

METALEXPORT
WARSZAWA

Sole Exporters of Polish Textile Machinery
WARSAW, MOKOTOWSKA 49, POLAND

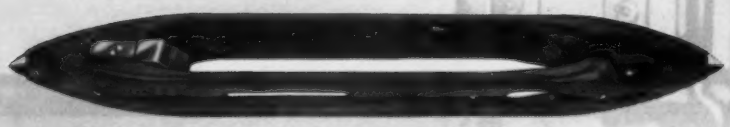
Canadian agent: *Canadian Synthetic Fibres, Galt, Ontario, 35 Waterstreet South*

For further information use Handy Return Card, Page 167

Quality PLUS SAVINGS

ARE YOUR BONUS WITH

Southern PRODUCTS



The hardest working equipment on your looms MUST be the very BEST QUALITY . . . the kind of dependable quality you get only with Southern Products.

You get a bonus, too, when you install Southern Quality Products on your looms . . . a bonus of longer, trouble-free performance, and higher quality fabrics.

The Southern line includes all types of Shuttles, Tempered Dogwood, Durawood, Duraweld and Duramold, made to suit your rigid requirements, and Stedco Bobbins of equally high quality, all made under strict Southern Quality Control.

The Durapic plastic Picker has a remarkably long life, and gives unequalled service with fewer replacements.

Southern Picker Sticks have long been famous for their stamina and strength, with a variety of selection to meet every requirement.

Why not let one of our Sales Engineers show how you can profit more with Southern Products.

Stehedco
STEEL HEDDLE MFG. CO.
PHILADELPHIA 32, PA.
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GREENVILLE, S.C.
Southern

K-5918

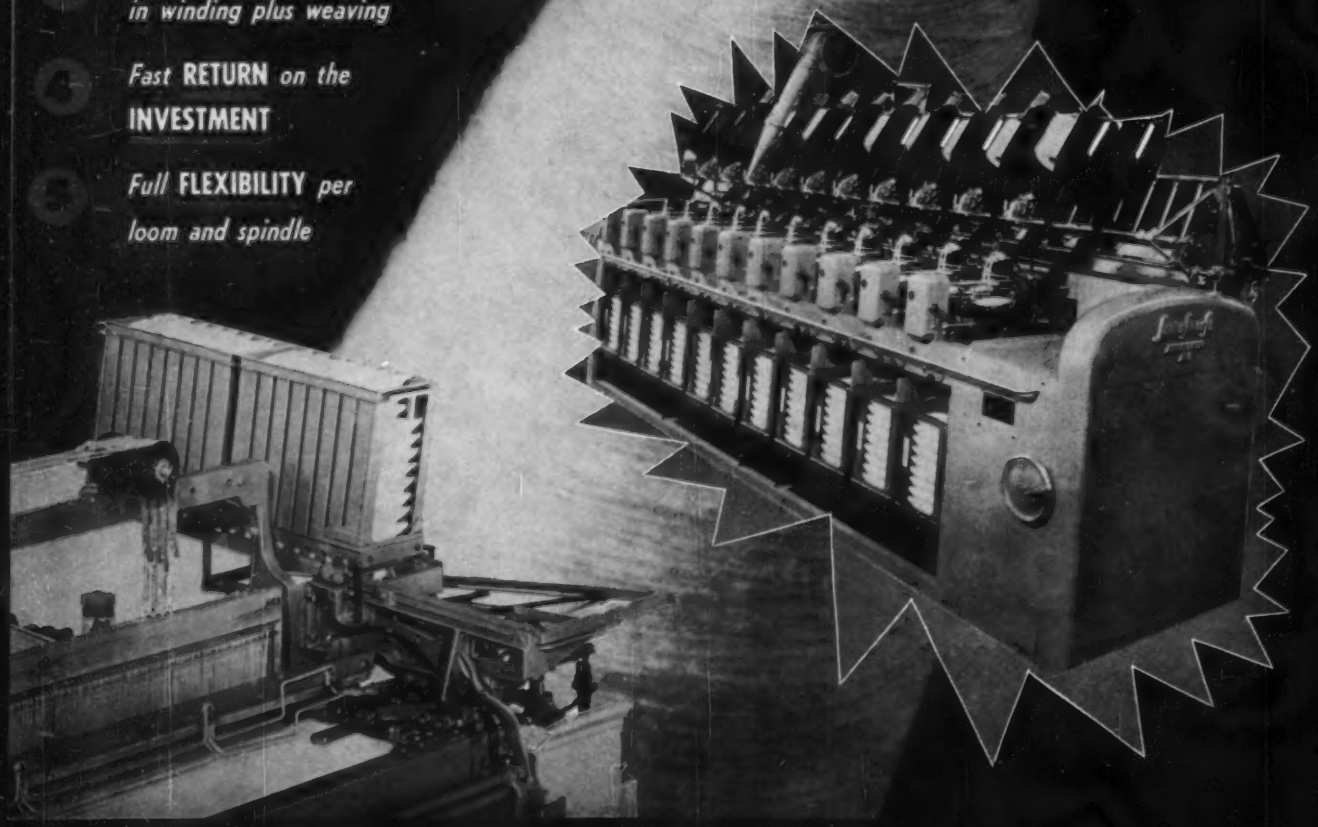
Other Plants and Offices: Granby, Quebec, Canada • Lawrence, Mass. • Greensboro, N.C. • Atlanta, Ga. • Textile Supply Co., Dallas, Texas • Albert R. Breen, Chicago, Ill.

SERVOLOOM AUTOCOPSER

offers new approach to mill automation with individual spindle

5 MAJOR ADVANTAGES

1. *Highest* **WEAVE ROOM EFFICIENCY** *through precision-built tip bunch*
2. *Best ratings in* **CLOTH QUALITY** *through fewer and perfect transfers*
3. *Lowest over-all* **COST PER POUND** *in winding plus weaving*
4. *Fast* **RETURN** *on the* **INVESTMENT**
5. *Full* **FLEXIBILITY** *per loom and spindle*



AMERICAN SCHLAFHORST CO.

THE TERRELL MACHINE CO., INC.

CHARLOTTE, N. C., U. S. A.

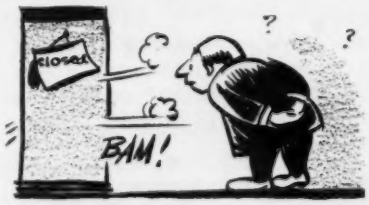
NEWS IN BRIEF

Mills Step Up Spending. Textile mills are committing themselves to spend about $150 million on new plant and equipment during

the current quarter of this year, the Department of Commerce says. That's about $30 million more than in any of the three previous quarters, and will bring the year's total to some $510 million. While the 1961 figure will be a little below the amount spent last year, it's a jump of about 20% over the mills' investment figure for 1959.

Faster Depreciation. Faster tax write-offs for textile machinery have been announced by President Kennedy, as promised in last May's 7-point program for the textile industry. Reduced to 15 years is the "useful life" of spinning and weaving equipment (it was 25-30 years under the old Bulletin F); dyeing and finishing equipment can now be depreciated in 12 years (compared with 15-20 years previously). While in dollars and cents the saving to a mill may not be substantial (about $2,700 a year to a mill which spends $100,000 on new spinning equipment, for instance), industry leaders hailed the announcement as indicative of a new departure in Treasury Department thinking—recognition of the obsolescence factor in setting depreciation schedules. Big if: The new schedule won't be of any help to a mill if there are no profits to put into modernization and expansion.

Study Mill-Closing Effect. What happens to a town when a textile mill closes? The Department of Commerce is finding out by studying what happened to the economies of 21 communities (in 14 states) which have lost one or more mills in recent years. These factors are being considered: population, employment, retail trade, municipal services, taxes, utilities, union membership, and real estate



values. Typical of the towns in the survey is Newnan, Ga., which lost three mills in two years—American Thread Co., Mount Vernon Mills, and Grantville Mills (actually not in Newnan, but in nearby Grantville; it has since been modernized and reopened under new management).

Slashing Seminar. Warp sizing from A to Z will be covered in a one-day seminar at the School of Textile Technology of Auburn University, Auburn, Ala., on November 8. It's co-sponsored by the School, West Point Foundry & Machine Co., and Corn Products Sales Co. Among the topics to be covered: basic starch chemistry, size preparation, slasher operation, starch cookers, and automation in the bulk handling of starch.

They're Turning to Wool. Sheep are working harder all over the world, if the Wool Bureau's estimate of the current situation is correct. World wool consumption will hit a record high of 3,251 million pounds this year, they say—third year in a row that the figure has gone up. The predicted figure is about 1.1% higher than last year's.

Halt Lap Imports. Picker-lap imports, a thorn in the side of the raw cotton interests for the last two years or so, are restricted to 1,000 pounds annually through a proclamation by President Kennedy. Importers had been avoiding the rigid quotas on raw cotton by importing laps made in Canada or Mexico, or in the free-trade zone of New Orleans. Although it's aimed specifically at picker laps, the proclamation forbids importation of all but token amounts of

cotton processed to any stage before yarn. The equivalent of about 50,000 bales of cotton (1½ times the raw-cotton quota) came in by the picker-lap route last year; just before the clamp-down, it was

"A" *Produces 50% More Pounds than* "B"...

She uses a FOSTER MODEL 506 Automatic Winder

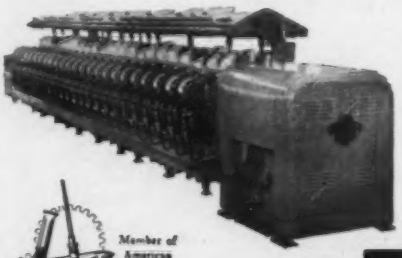
Yes, it has been substantiated and documented in mill tests under production conditions that the Foster Model 506 Automatic Winder will increase operator's production by 50%. Small wonder, since the Model 506 runs at twice the winding speed of our manual winder.

AND MODEL 506 CONES ARE OF CONSISTENTLY HIGH QUALITY — even better than Model 102 cones (standard for the sales yarn market for many years). That's because knot tying on the Model 506 is not entrusted to automation, which, in our experience, is bound, at times, to cause wild yarn, tangles, bobbin rings, crossed ends, uneven package density and rough yarn. Knot tying on the Model 506 is done by the operator with a standard high speed knotter, but it takes a mere fraction of a minute and permits her to test the knot at the same time.

AUTOMATION ON THE 506 includes threading up, slubbing, cleaning, disposal of empty bobbins, gauging full cones, donning full bobbins and doffing empty bobbins. None of these operations are a potential threat to yarn or package quality, as is automatic knot tying.

OTHER ADVANTAGES OF THE 506 are as follows: — requires less floor space than our manual winder with same capacity; winds any type of open wind putup, including a steep taper (9° 36') knitting cone; investment required is no more than for our manual winder with same capacity.

GET THE COMPLETE STORY on the 506. Send for our 506 brochure. No obligation.



Member of American Textile Machinery Association

MODEL 506

FOSTER MACHINE COMPANY

284-1

A YARN WINDER FOR EVERY PURPOSE

Westfield, Massachusetts, U. S. A.

SOUTHERN BRANCH — Route 85, Belmont, N. C. • CANADIAN REPRESENTATIVE — Ross Whitehead & Co., Ltd., 2015 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ontario • EUROPEAN REPRESENTATIVE — Muschamp Textile Machinery (Sales) Limited, Eider Works, Wellington Road, Ashton-under-Lyne, Lancashire, England • REPRESENTATIVE IN MEXICO — Carlos Rios Pruneda, Av. Juarez No. 145 Desp. 17, Mexico I.D.F.

For further information use Handy Return Card, Page 167

estimated that the New Orleans free-trade zone had the equipment to make enough picker laps to equal 92,000 bales annually.

Soft Goods Firming Up? Distributors and retailers have started substantial build-ups in their inventories of soft goods. That's the optimistic word from J. E. Jeter, vice-president of Standard Knitting Mills' Healthknit Division. Cause of his optimism: Healthknit's August shipments were up 39% over the same month last year. Bulk of the increase was in briefs and T-shirts, but sharpest upturn was in thermal underwear and sweat shirts.

Japanese Vexed. "For the sake of continued good relations between the United States and Japan, the Japanese cotton textile industry, in line with its government's wishes, agreed to an unsatisfactory 1962 export quota arrangement. But, by refusing to budge and grant more than a nominal yardage increase, the United States lost considerably in its favored position as Japan's trading partner."—Keigo Yamada, chairman of the Association on Japanese Textile Imports, Inc., New York.

Canada Best Hose Customer. Canada continued to be the United States' best foreign customer for women's and children's nylon

Continued on page 104

Labor-Management News

Peerless Unionized. Employees at the Rossville, Ga., plant of Peerless Woolen Mills, a unit of Burlington Industries, recently voted 910-654 for representation by the Allied Industrial Workers of America, AFL-CIO. Later, and with no stated connection with the union vote, Burlington announced that the mill would be closed and sold. (AIWA later filed unfair labor practice charges against Peerless, and sought a temporary injunction to prevent liquidation of the plant.) At about the same time, the Tifton, Ga., plant of Peerless was sold to J. P. Stevens & Co. No change was announced for Peerless' other plant, at Cleveland, Tenn., where a union organizing effort was in progress at the time we went to press.

Other Union Victories. Textile Workers Union of America now represents employees at the Salisbury, N. C., plant of Cone Mills Corp., after coming out on top 310-234 in an election conducted by the National Labor Relations Board. * * * The 60 or so employees of Hoffman Lion Mills, West Warwick, R. I., are now members of TWUA. Representation was granted without an election. The mill recently moved to West Warwick from Fall River, Mass.

Unions Rejected. Production and maintenance workers at Draper Corp., Hopedale, Mass., turned down union representation in an election recently held by the National Labor Relations Board. United Steel Workers got 472 votes, International Molders & Foundry Workers Union got 35, and 956 employees voted for no union.

Wage Hikes. Employees at the five Alabama plants of Vanity Fair Mills have received a wage increase of about 5%. * * * Pay raises granted to 325 hourly rated employees at Hanes Dye & Finishing Co., Winston-Salem, N. C., will up annual payroll costs by $48,000 to $50,000, according to company officials.

TWUA Wants More. Textile Workers Union of America will seek wage increases and more fringe benefits in the months ahead, TWUA president William Pollock told members recently.

Wage Hike Tied to Imports. A unique labor contract, promising a 5-cent hourly wage increase when an import quota is imposed, has been signed in Canada by Belding-Corticelli Ltd. and the National Syndicate of Braid Employees. The contract provides for retroactive pay and increases of 11 cents per hour over the three-year contract period. The new article in the contract, covering employees at B-C's Coaticook, P.Q., plant, grants the extra 5 cents "if and when the Federal Government [of Canada] places a maximum quota of 25% of the Canadian usage on the imports of braided and woven elastics."

Glenn H. Bull, Overseer of Spinning at Abney Mills, Woodruff, South Carolina, and W. T. Coker, Asst. Manager of Armstrong's Greenville, S. C., office, discuss production on this spinning frame. The frame is equipped with Accotex J-490 cots on front and back lines; aprons are NO-7075.

Accotex cots and aprons can help you produce stronger, more uniform yarn

Mill men know that the strength and uniformity of their yarn depend largely on the performance of their spinning cots and aprons. That's why hundreds of these men rely on Armstrong Accotex Cots and Aprons to control excessive lapping, eyebrowing, and yarn irregularities. They know from experience that the complete Accotex line contains a range of materials designed to get high production of quality yarn with any natural fiber, synthetic, or blend . . . and on any type of equipment.

These same mill men know, too, that when they have an unusual problem, they can count on their Armstrong man to help. A good example is Armstrong man, Walter T. Coker, shown here working with personnel of Abney Mills, Woodruff, South Carolina.

Take advantage of the experience and knowledge of your Armstrong man when you have a roll covering or apron problem. Armstrong Cork Company, 6411 Ivy Street, Lancaster, Pa.

ACCOTEX IS A REGISTERED TRADEMARK OF ARMSTRONG CORK COMPANY.

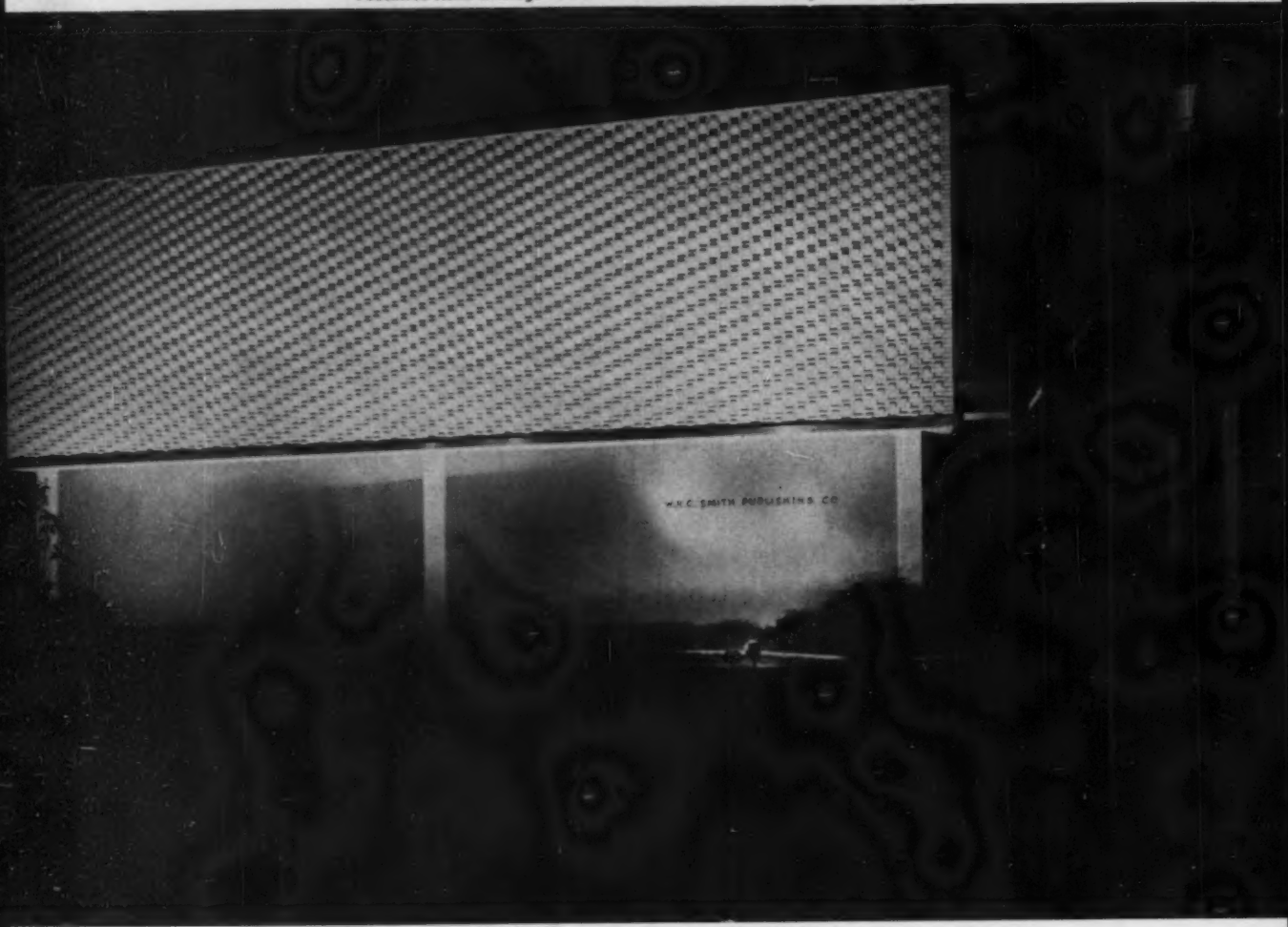
Alvin B. Poole, Overseer of Carding, and Walter Coker examine rolls on this drawing frame. Roll covers are Accotex NC-762.

Charles Sherbert tends a roving frame equipped with Accotex NC-762 cots on front lines; NC-727 cots on back lines; J-490 cots on middle lines; NO-7876 aprons.

D. E. Ross, Superintendent of this Abney Mills plant, chats with Coker about new textile developments.

Armstrong
ACCOTEX COTS AND APRONS

Peachtree Road frontage of the new W.R.C. Smith Publishing Co. building.



The building entrance faces 26th Street.

TI's editorial and business department offices.

Textile Industries *moves to a new home*

■ FIFTY-SIX YEARS and sharp contrasts separate the spacious new headquarters of W. R. C. Smith Publishing Co. from the one-room office in which the enterprise began.

In 1905, a man with vision undertook to publish *Southern Engineer* and *Practical Machinist*. Setting up shop in a one-room office in downtown Atlanta, W. R. C. Smith worked and prospered. And he soon acquired a third magazine, TEXTILE INDUSTRIES (then called COTTON), which had been founded in 1898. Its first issue under the W. R. C. Smith masthead appeared in February 1907.

The next step in TI's growth was not long in coming: In October 1908 W. R. C. Smith bought *Southern Mills*, published in Greensboro, N. C., and incorporated it with TEXTILE INDUSTRIES. The following month the Boston *Journal of Commerce*, described as "the oldest textile paper of continuous publication under its individual name in the United States," was acquired, and it too was incorporated into TI.

At the time of W. R. C. Smith's death in 1941, the company bearing his name counted five successful titles and the organization occupied almost two full floors in the Grant Building on Walton St. In 1948 there were six publications and more space was needed, so the company moved to larger quarters at 806 Peachtree St.

Once again, forced by expanding operations, the company has moved to larger quarters. This time, with eight publications clamoring for space, nothing would do but to have our own building. These handsome, functional offices, with 16,000 square feet of floor space, are at 1760 Peachtree Road, on the spot where Capt. Evan Park Howell's Georgia battery of artillery on July 20, 1864, supported Hardee's assault on the Union 4th Corps line during the Battle of Peachtree Creek.

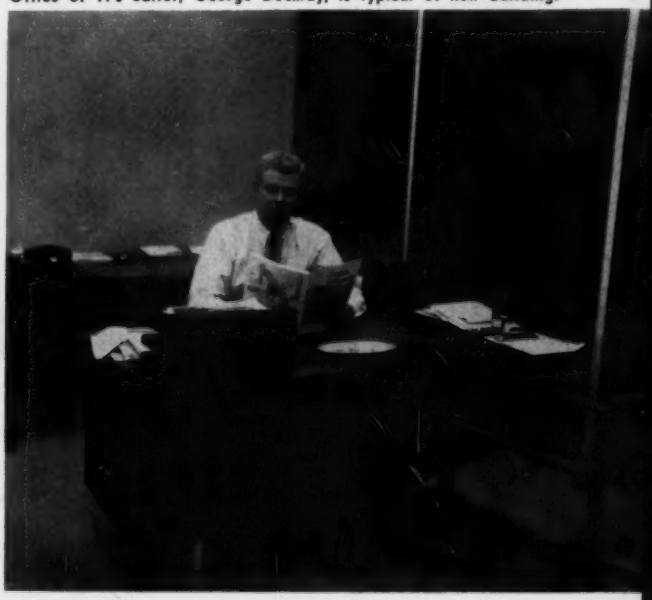
The entire building has been specially designed to meet the exacting needs of modern publishing operations. Year-round air conditioning, brilliant lighting, and tasteful decorating make these offices as nearly ideal as possible. The pictures here can only give a general impression—but we hope that readers, advertisers, and other friends will come to visit us in our new home.

As we begin our 64th year of publication, in our new base of operations, we republish W. R. C. Smith's words as he assumed ownership of TI in 1907:

"The editorial policy of the paper will, as in the past, be strenuously for the mill man. We shall help fight his battles against unfair legislation, whether it be state or national. We shall publish for him full descriptions of all that is new and interesting in the textile field. We shall illustrate and explain, so far as our editors are able, everything that can be of possible interest to the various department heads of the mill."

Jess Ellington, associate editor, in TI reception corner.

Office of TI's editor, George Dockray, is typical of new building.



General Electric Makes Eddy-current-coupling Drives

And they're dependable drives. The complete line includes water-cooled and air-cooled eddy-current couplings. We call them KINATROL* drives. Ratings are from 1 to 150 horsepower, operating from standard a-c power.

A General Electric KINATROL drive is not just another eddy-current coupling. For instance, in the water-cooled coupling, water control is packaged. You'll see much less external piping. Furthermore, the coupling is protected from flooding—and the air gaps are dry, preventing corrosion.

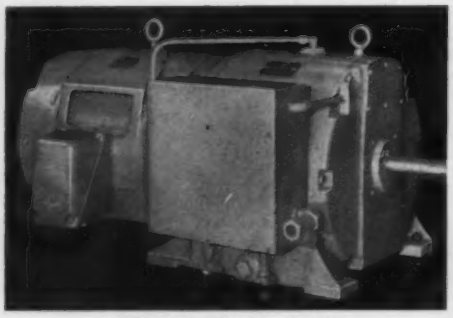
KINATROL couplings are compact, field proven and dependable. General Electric has had a good deal of experience in the engineering, manufacturing, and application of packaged adjustable-speed drives. And we know how important service is to a customer.

KINATROL —a good product, with the kind of service you can depend on. Please call your nearest General Electric Sales Office for further details.

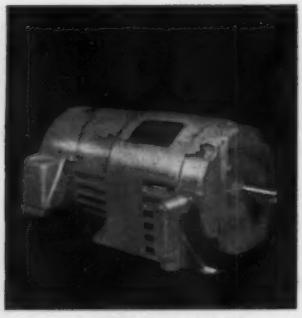
*Trademark of General Electric Company

821-07

AIR COOLED, 7-1/2 to 100 HP



WATER COOLED, 25 to 150 HP



AIR COOLED, 1 to 5 HP

DIRECT CURRENT MOTOR AND GENERATOR DEPARTMENT

GENERAL ELECTRIC

ERIE, PENNSYLVANIA

For further information use Handy Return Card, Page 167

RECENT TECHNICAL AND COMMERCIAL DEVELOPMENTS

by J. B. Goldberg
Consultant to the Textile and Allied Industries

Exclusive

FIBERS AND YARNS

Spun-Dyed Nylon. British Nylon Spinners Ltd. is offering nine colors of spun-dyed 40/13 nylon yarns. These are suggested for use in providing colored stripes or checks in warp-knit nylon shirtings, generally in combination with 30, 40, 60, and 70 denier standard warp knitting yarns.

More Polypropylene. The National Plastic Products Co., Odenton, Maryland, has been purchased by J. P. Stevens & Co., Inc., and Enjay Chemical Co. It is reported that the plant will be used to produce polypropylene multifilament yarns and staple.

New Japanese Fiber. Further details released on a polyazine fiber developed experimentally in Japan indicate that it is made by polymerizing isocinchomeronic acid, hexamethylenediamine, and adipic acid. Moisture regain is said to be 6-8%, and dyeability is claimed to be substantially better than other synthetics. Patent rights have been established in Great Britain, France, Italy, and Switzerland.

Improved Teflon. Du Pont is producing an improved Teflon TFE-fluorocarbon fiber specifically designed for braided packing for pumps and valves. The improved performance is obtained by complete removal of all carbonaceous material by bleaching and pre-shrinking the fiber. The new yarn is priced at $18 per pound for 400 denier and $14 per pound for 1200 denier.

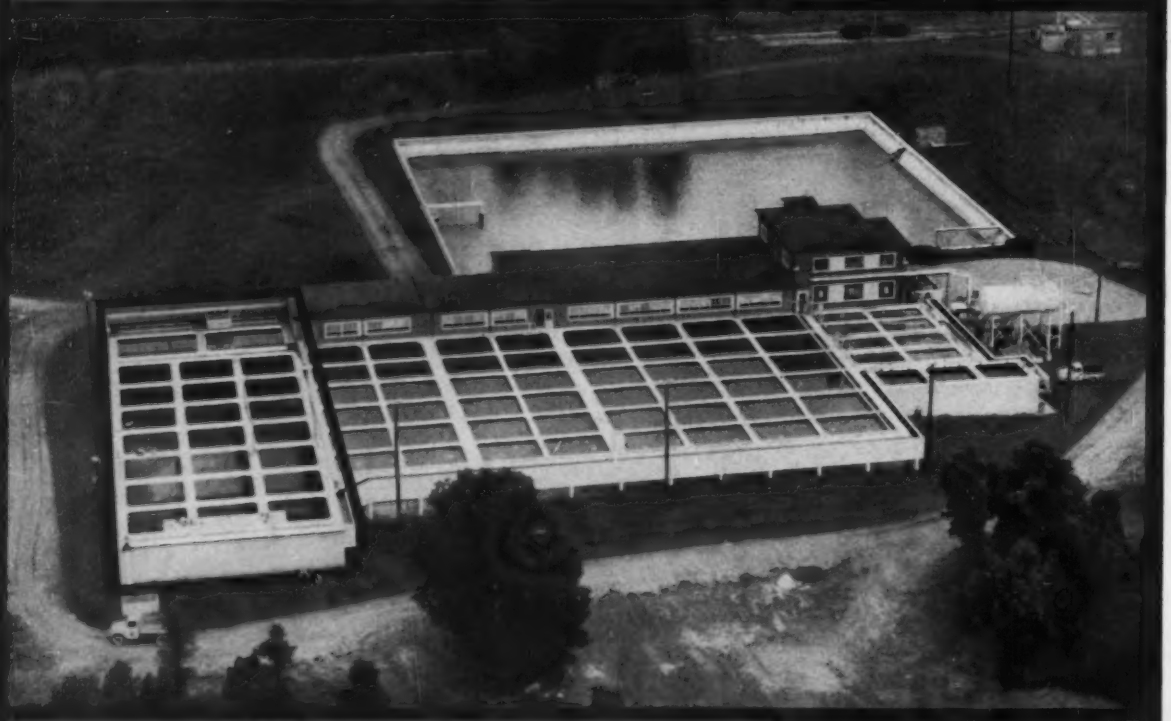
Fine Paper Yarn. A Michigan company reports the development of a fine (thickness equivalent to 700 denier) paper yarn, said to be suitable for sheer fabrics used in the millinery trade.

Passenger car tires with polyester cord may be only a year away, according to Goodyear Tire & Rubber Co. Here is a gas-fired infrared dryer in a 3-T unit at Goodyear's Cartersville, Ga., plant; it is being used for experimental processing of Vycron, polyester made from Goodyear's Vitel resin.

Stretch Cotton Yarn. The U. S. Department of Agriculture's Southern Regional Research Laboratory has developed a cotton stretch yarn, using a resin-impregnation method. Work is currently under way to adapt it to conventional false-twist machinery used for producing synthetic stretch yarns. (Details will appear in TI later.) * * * A stretch cotton fabric produced by M. Lowenstein & Sons was shown to a group of retailers recently by the author of this column.

Pill-Resistant Polyester. A patent covering novel filaments and fabrics, assigned to the Du Pont Co., describes the fibers as having a "continuous void throughout

SPRINGS NEEDED MORE WATER



Filters and settling basins at far left were recently completed to handle additional 5,000,000 gallons per day, bringing the total filtered water capacity to 15 MGD.

Growing demand for Springmaid fabrics increased the need for filtered water at The Springs Cotton Mills' Grace Bleachery. To meet this need Robert & Company Associates designed a 5 million gallon per day filter plant addition to bring the capacity of this plant up to 15 MGD. This is the third addition designed for this filter plant and one of many improvement projects which Robert & Company Associates have handled for The Springs Cotton Mills.

If your plant is short on water, call on Robert & Company's 43 years experience in working with leaders of the textile industry.

ROBERT AND COMPANY ASSOCIATES
Textile Engineering Division
ATLANTA

For further information use Handy Return Card, Page 167

their length."

Pineapple Fiber. Commercial production of fiber from pineapple leaves has begun in South Africa. Monthly production is about 50 tons on one shift.

Flame-Resistant Acetate. A British patent application covers the production of a flame-resistant acetate yarn. Resistance is said to be unimpaired by normal cleaning, washing, or wear.

Slub Yarn. Du Pont Co. recently patented a slub yarn described as being characterized by slubs containing both S and Z twist.

Textured Acetate. Celanese "Celacrimp" textured filament acetate yarn is being offered for use in bedspreads.

MACHINERY AND PROCESSES

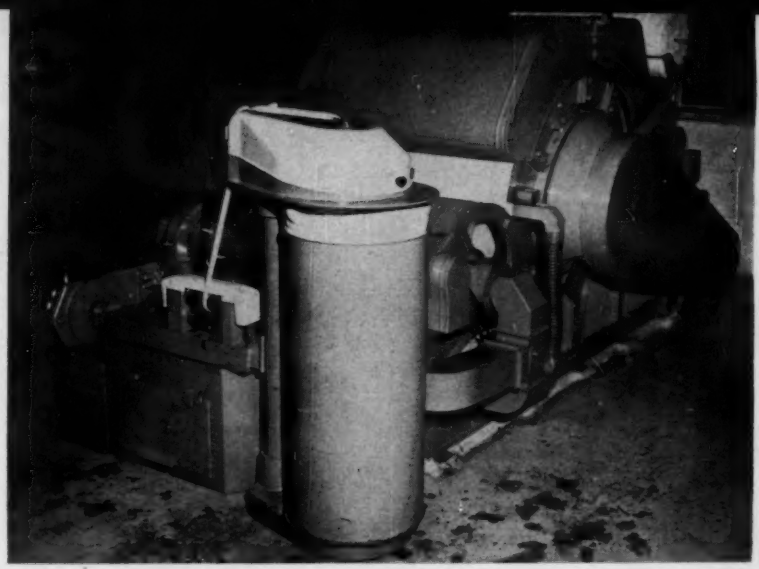
Roving-Frame-Spun Yarn. Large, knotless packages of coarse yarn, especially desirable for tufted carpets, have been experimentally spun by Saco-Lowell Shops on their Rovematic roving frame. Eight-pound packages of 1s yarn have been spun at a front-roll speed of 450 rpm, from 75-grain sliver of 1½" carpet rayon; machine can be adapted to spin any fiber, according to S-L.

Hot-Plate Stretch. A French company has obtained a British patent on a method for producing crinkled yarn by passage in contact with a hot body having a convex surface.

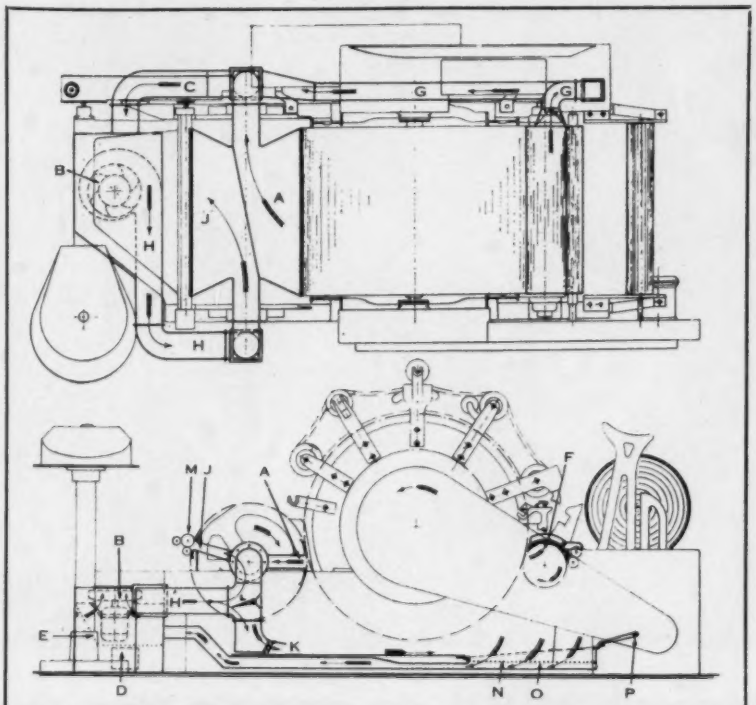
Glass Fiber Deposition. A New Jersey firm has been assigned a patent for electrostatic deposition of glass fibers; the method is said to be applicable also to organic fibers. Primary use is seen for reinforcement of plastics, although it may be useful in manufacture of nonwoven fabrics.

Stabilized Tricot. New method for knitting nylon tricot, developed by Bangor Division of Collins & Aikman, is said to make a less stretchy fabric, while retaining

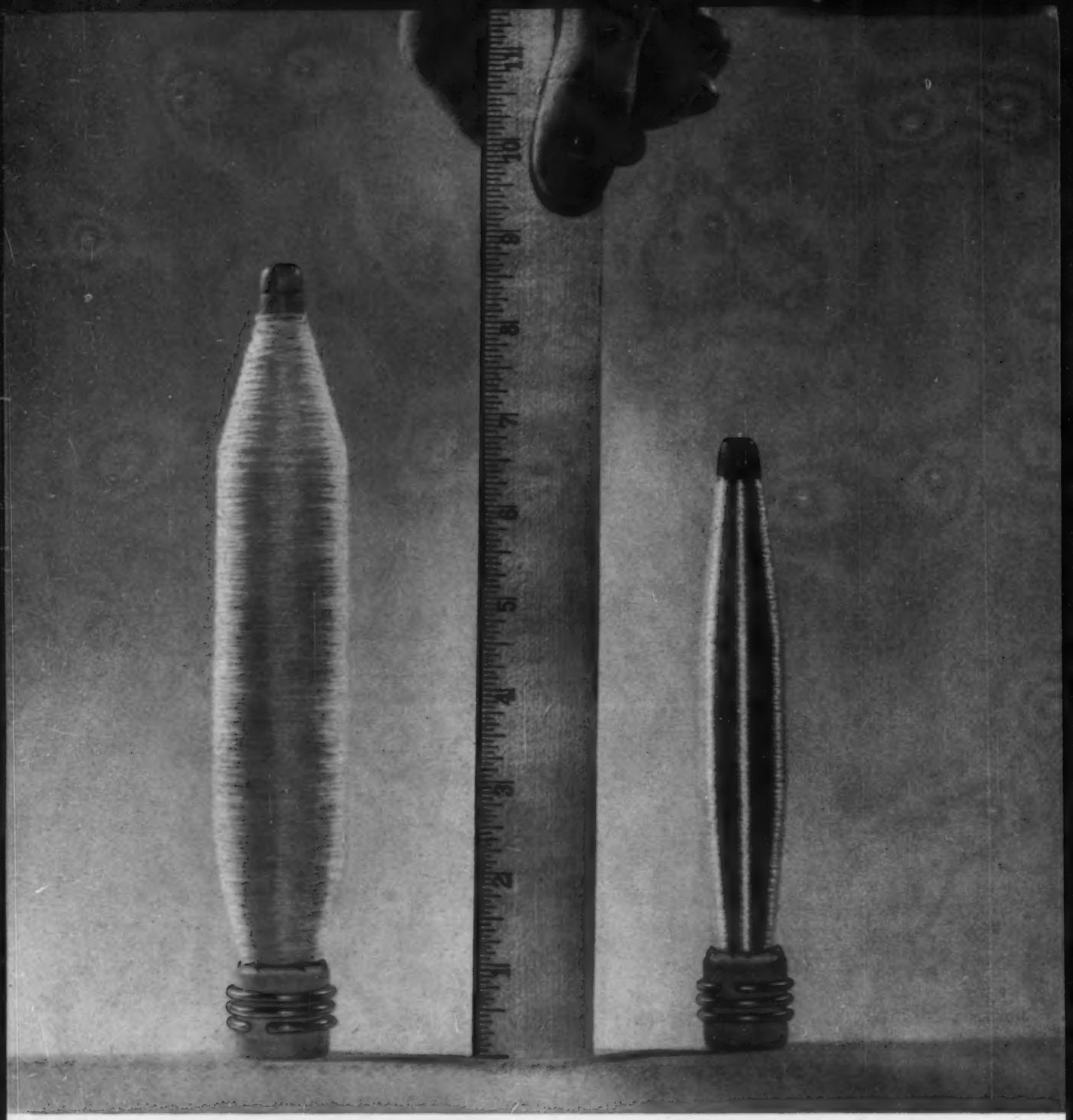
Continued on page 144



The production rate of this "aerodynamic" card (TI for June, 1960, page 61) is roughly four times that of a conventional card, L. H. Morrison of Medley Mfg. Co. told those attending the recent Textile Quality Control Association meeting in Greensboro, N. C. Known as the HP card, the revolving flat machine is manufactured and sold in Europe by SACM and features a controlled air flow system (see sketches below) which is reported to provide more efficient transfer of the fiber from the cylinder to the doffer. Cleaner sliver, fewer neps, improved evenness, and stronger yarns are other advantages being derived from the card which is now in mill operation in Europe, Mr. Morrison said. Whitin Machine Works has been licensed to manufacture and sell the card in the United States.



At the critical position just below the setting point between the cylinder and doffer, a fixed mouthpiece is placed inside the doffer and air is extracted through the perforated doffer surface and special metallic wire via a trunk (C) by means of a fan (B) mounted low down in the space between the doffer and the calender rollers. As the air leaves Trunk C it passes into a box (D) and then through a nylon filter indicated by the dotted line (E) before passing to the fan blades. Air is also extracted from above the licker-in through another trunk (G) which joins Trunk C at a point below the doffer shaft. Air exhausted from Fan B passes along a duct (H) and is then divided into two streams by a damper (L). One stream passes to a fixed mouthpiece inside the doffer located immediately behind the doffing rollers (M) to assist in the removal of fiber from the doffer surface, while the other stream is led into the space beneath the cylinder undercasing by another trunk (K). The lower small diameter doffing roller is a perforated tube supported on a center shaft to enable the air blown out from the nozzle inside the doffer to escape. The air stream passing down beneath the cylinder is directed toward the back of the machine. Air in excess of requirements of the suction nozzle at the fiber removal point of the doffer passes through a horizontal perforated sheet (N) located beneath the rear point of the cylinder and the licker-in and then through a nylon filter cloth gauze (O) from which it is conveyed through a trunk back to the fan.



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LEESONA LEADS TO BETTER FABRICS

EXECUTIVE VIEWS

Prepared by a man who is closely identified with the textile industry.

Buying inflation at $1,000,000 an hour

QUITE recently a United States Senator called the attention of the Senate to the fact that since the present Administration was inaugurated on January 20, the national debt had been increasing at the rate of $1,000,000 an hour, day and night. New proposals for spending submitted to the Congress have clearly indicated that there is to be no let-up in this increasing purchase of more inflation. We have entirely too much inflation now, but the Administration is all for buying more.

Back last winter there was a big flurry in the gold markets of the world because speculators had heard that the United States would devalue its dollar again, but the Administration hastened to reassure the public that it had no intention of any increase in the price of gold. This may be the case, but the price of gold is automatically affected by any depreciation in the value of the American dollar, and if it is depreciated sufficiently, the government may be forced to raise the price of gold to keep from losing all that we have, or to attract gold if and when we need it.

Nominally, the United States dollar is supposed to be a certain number of grains of gold, but since the dollar is not a convertible currency, nobody knows what it is worth from the domestic standpoint. We have to depend on what value foreign countries attach to our gold to establish any real relationship between the inconvertible paper dollar and the real gold dollar.

If the United States dollar continues to depreciate, foreigners who have some claim on gold payments will find our gold such a big bargain when it can be bought with cheaper and cheaper dollars that we will not be able to maintain our gold stock; and to prevent its melting away, the Administration may be forced to take steps to stop the melting. Therefore the good intentions of the Administration in one direction can be completely nullified by poor judgment in others.

OUR NATIONAL DEBT has for many years been practically nothing but a bookkeeping entry. Various administrations have talked casually about balancing the budget and bringing the debt under control. But when they begin to talk seriously, it is about raising the national debt limit, which has recently been raised again and will before long have to be raised some more.

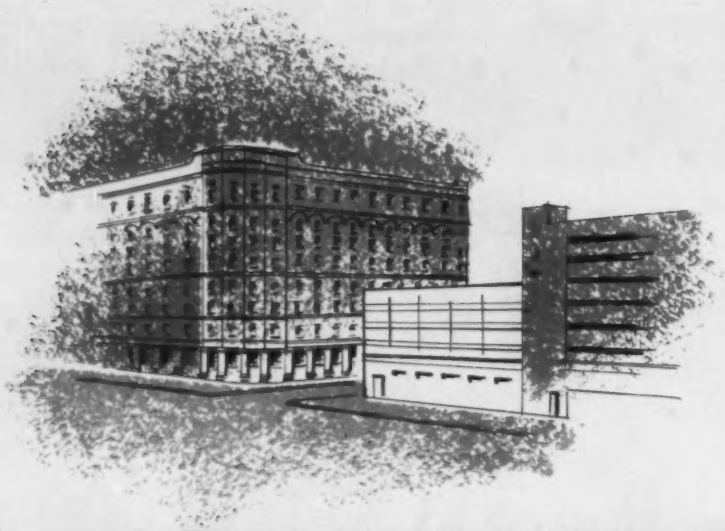
There is no limit to what politicians can spend if there are no brakes on the spending. The only efficient brake on government spending is a balanced budget. In a country with fully convertible currency, the brake on spending is the simple matter of how much money is available, but in a country with a managed paper currency, the question of money availability depends solely on an Act of Congress. The clamor for public spending is loud and insistent, while the voices raised on the side of fiscal sanity are few and feeble.

The inflation with which we have been so playfully toying for a number of years has now got us into several pretty hopeless messes. One of these is the perennial and incurable farm problem. Inflation has pushed up the prices of everything the farmer buys to such an extent that without government subsidies he would probably abandon the farm and come into

5-Billion Dollar Stamp

■ IT TOOK this 20-billion-mark stamp (5 billion pre-World War 1 dollars!) to send a letter in Germany in 1923. It hasn't happened here —yet.

COURTESY WARNER & SWASEY



The Trust Company Tradition

Established in 1891, the Trust Company of Georgia has for more than 70 years brought the best in banking services to businesses throughout Georgia and the South.

Old in tradition and experience, the Trust Company is young in its concept of what complete banking should be. It has for example, Georgia's largest and Atlanta's oldest Trust Department. It has one of the South's most active Bond Departments. The Trust Company was the first bank in the state with a complete International Department, and even today is one of three banks in the nation with a Factoring Department.

A second principle in the Trust Company tradition is that of giving personal attention to every account. This bank does not believe that service can be rendered *en masse*. Rather, we remain convinced that each banking relationship is an individual matter, requiring individual direction by our staff.

Combining personalized assistance with its broad scope of financial services, the Trust Company of Georgia can be a valuable and profitable banking connection for you.

TRUST COMPANY OF GEORGIA

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town and go on relief. That is, the average run-of-the farm farmer would. A lot of the big farmers, with tens of thousands of acres and highly efficient machinery and good business management, could compete in world markets, but the small farmer can not without government help.

The result of this help has been to do very little for the small farmer except to persuade him to take his dole at home instead of moving into town to get it. The big farmers are becoming fabulously rich through these government hand-outs and the maintenance of artificially high prices for farm products. These artificially jacked-up prices will naturally keep the cost of living at a high point for city people, and bolster their insistent demands for higher wages so that the farmers will once more need more support money. So a very neat endless circle of inflation is established and maintained.

NOBODY HAS come up with any sensible Farm Program, and nobody will, because the whole proposition just isn't sensible. It is generally assumed that the farmers will have to go on forever selling their output at artificially inflated prices and accepting doles from the government for not overproducing.

Those farmers who raise cotton have created a terrible problem for the cotton textile industry, because the American mills have to pay about eight cents a pound more for cotton than their foreign competitors. There is some talk about the government erasing this discrepancy by refunding to the textile mills this special bounty on cotton.

There is other talk about the government having to subsidize the textile industry, because the current policies of the government point inexorably toward the liquidation of the American textile industry in time without the same sort of support that the government has had to give to the farmers to keep them on the farms. The textile industry happens to be affected by competition from practically every moderately civilized country in the world.

Europe is rapidly adopting American manufacturing processes which we developed years ago to try to meet the threat of constantly inflated wage rates. There are no secrets about these American manufacturing methods, and as the Europeans become more and more automated they can do the same thing to us in every industry that they are now able to do in textiles.

The federal government could conceivably subsidize a few major

Continued on page 80

FUTURE EVENTS

Date		Event	Location
Nov.	1-2	Textile Engineering Div. ASME	MIT Cambridge, Mass.
	1-3	Industrial Engineering & Management Clinic, sponsored by Industrial Management Society	Pick-Congress Hotel Chicago, Ill.
	8-9	Chemical Finishing Conference	Sheraton Park Hotel Washington, D. C.
	9	Piedmont Division STA	Johnston YMCA Charlotte, N. C.
	13-15	Narrow Fabrics Institute	Statler Hilton New York City
	17	Hudson-Mohawk Section AATCC	Albany, N. Y.
	17	Metropolitan Section AATCC	Suburban Golf Club Union, N. J.
	18	Midwest Section AATCC	Chicago, Ill.
	25	Southeastern Section AATCC	Atlanta Athletic Club Atlanta, Ga.
Dec.	1	Delaware Valley Section AATCC	Beck's Restaurant Philadelphia, Pa.
	1	Western New England Section AATCC	Shelton, Conn.
	18	Northern New England Section AATCC	Motel 128 Dedham, Mass.
		1962	
Jan.	11-12	Cotton Research Clinic	The Carolina Hotel Pinehurst, N. C.
	20-21	Palmetto Section AATCC	Poinsett Hotel Greenville, S. C.
	27	Piedmont Section AATCC	Hotel Charlotte Charlotte, N. C.
	29-30	National Cotton Council annual convention	New Orleans, La.
Feb.	7	American Association for Textile Technology annual conference	Hotel Commodore New York City
	15-16	American Society for Quality Control, Textile and Needle Trades Div., annual conference	Clemson House Clemson, S. C.
Mar.	29-31	American Cotton Manufacturers Institute annual meeting	Biltmore Hotel Palm Beach, Fla.
Apr.	11-13	The Fiber Society (joint meeting with Textile Engineering Div. ASME)	N. C. State College Raleigh, N. C.
	11-13	American Society of Mechanical Engineers, Textile Engineering Div.	N. C. State College Raleigh, N. C.
	25-28	National Association of Hosiery Manufacturers annual convention	Americana Hotel Bal Harbour, Fla.
May	1-4	World Congress of Man-Made Fibers	London, Eng.
	10-11	Underwear Institute annual meeting	New York City
	16-19	Georgia Textile Manufacturers Association annual convention	Diplomat Hotel Hollywood Beach, Fla.
May	30-June 2	Tufted Textile Manufacturers Association annual convention	Diplomat Hotel Hollywood Beach, Fla.
Sept.	5-7	Canadian Textile Seminar	Queens University Kingston, Ont. Canada
Oct.	3-4	Chemical Finishing Conference	Washington, D. C.
	15-19	Southern Textile Exposition	Textile Hall Greenville, S. C.
Nov.	14-17	AATCC national convention	Hotel Biltmore Atlanta, Ga.

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Since 1926, Sims has been designing and fabricating the specialized equipment called for in the manufacture of textiles.

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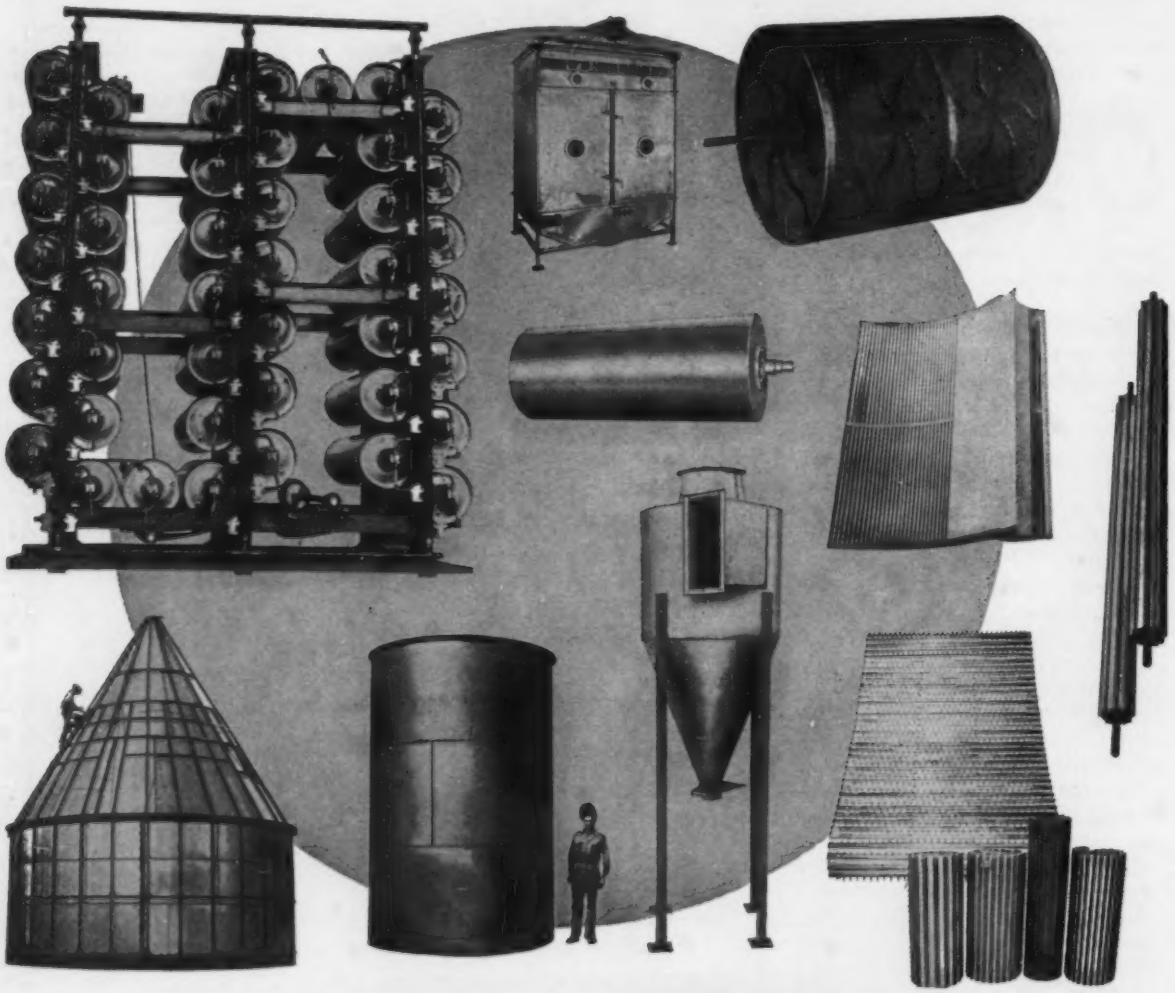

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We delivered the bearing to our customer at 8:30 a.m. A total elapsed time of less than five hours on a Sunday morning . . .

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FOR SAFETY YOU CAN SEE
REMEMBER THE "V" FOR
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• The men who pull the switches will tell you what can happen when a switch, *believed* to be open —*isn't*. A lot of things can happen—and every one of them is bad. Personnel safety is in jeopardy. Motors can single-phase. Machinery and work can be damaged. Down-time can skyrocket.

Doesn't it make sense to insist on **V**isible **B**lade construction which gives you a road block against any of those possibilities? Doesn't it make equally good sense to insist on the safety switch which gives you that construction—plus a lot of other performance advantages? Evidently it does, because *Square D switches have never been out of first place in more than 50 years!*

They cost no more... why settle for less?

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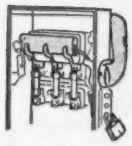
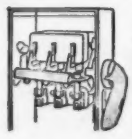
Extra Safety with Square D's Handle Design



WHEN IT'S **UP**
IT'S **ON!**



WHEN IT'S **DOWN**
IT'S **OFF!**

Handle is integral part of switch, not cover. When door is opened, handle remains attached to switch. Eliminates hazard of false handle indication or defeat of padlock provision. When it's padlocked, it's locked!

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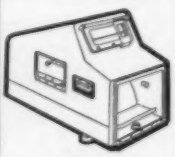
Faster-weighing, easier-reading SHADOGRAPH® Scales

A new optical system, developed by The Exact Weight Scale Company, provides the Shadograph with greater-than-ever visible accuracy. Its shadow-edge indication is sharper, easier to read, and contributes to faster operation.

Model 4104-A, above, is specially designed for weighing samples in conjunction with the Sheffield Micronaire testing machine. Dial is graduated with 1 inch of indicator travel equal to 15 grains, over and under.

Extreme accuracy, plus greater speed and easy-to-read indication make Shadograph the choice of cotton shippers, brokers and mill operators both here and abroad. The Shadograph is another precision product of Exact Weight, leading manufacturer of job-engineered scales for more than 45 years.

Model 183 Exact Weight Scale for control of cone and spool weight.



Model 4142 Shadograph for determining yarn count number. Direct-reading eliminates use of conversion tables.

Shadographs are available for color control, slashing, sliver test, denier test and check-weighing operations.

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PERSONAL NOTES

(from page 12)

leigh, N. C., as an assistant professor of textiles.

E. W. Seigler has returned to Abney Mills, Greenwood, S. C., to become vice-president and general manager in charge of manufacturing. * * * **Larry Minish** has assumed duties as recreational director at the Woodruff, S. C., plant.

John R. Fulp, Jr., has been elected a new member of the board of directors of Erwin Mills, Inc., Durham, N. C. **Marchant C. Cottingham,** vice-president, has been placed in charge of all manufacturing.

James H. Sawyer, development manager for Gayley Mill Corp., a division of Deering Milliken, Inc., has been promoted to technical superintendent. **Harrison P. Clamp,** overseer of the Clemson (S. C.) Fabrics treating division, has been promoted to plant engineer.

J. Cranston Gray has accepted a position with Berkshire Hathway, Inc., to head up all manufacturing and operation of the firm's seven plants.

John W. Groesbeck has assumed duties as manager of the newly created Industrial Rubber Division of Bibb Manufacturing Co. Mr. Groesbeck will be headquartered in New York City.

C. Richard Whitehead has been named plant manager of the Manchester, N. H., plant of Chicopee

Mr. Whitehead

Mr. Leaver

Manufacturing Corp. **Benjamin Leaver** has succeeded Mr. Whitehead as plant superintendent.

Miss Frances B. Davis, a graduate of the 1961 class at Lowell Technological Institute, is a textile chemist in the Shirley, Mass., plant of Samson Cordage Works. Through error Miss Davis' name was omitted from the list of textile school gradu-

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Free!

CAROLINA MACHINERY FACT FILE

Descriptive Sheets on Fiber Preparatory Equipment

CAROLINA MACHINERY COMPANY manufactures fiber preparatory equipment such as Granular Card Tops, SRRL Openers, Cleaners, Absorbent Card Processing Machines, Aprons, Fiber Blenders, Ceiling Condensers, Cotton Cleaners and Openers, Conveyors, Cotton Condensers, Blending Feeders, Nonwoven Fabric Machines, Synthetic Staple Openers, Picker Lags, Waste Machines and Waste Utilization Plants. The Fact File illustrates and describes many of these units. Additional information will be added from time to time. Send for your free copy on company letterhead.

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Mfrs. of Opening, Cleaning, Blending and Other Fibre Preparatory Equipment

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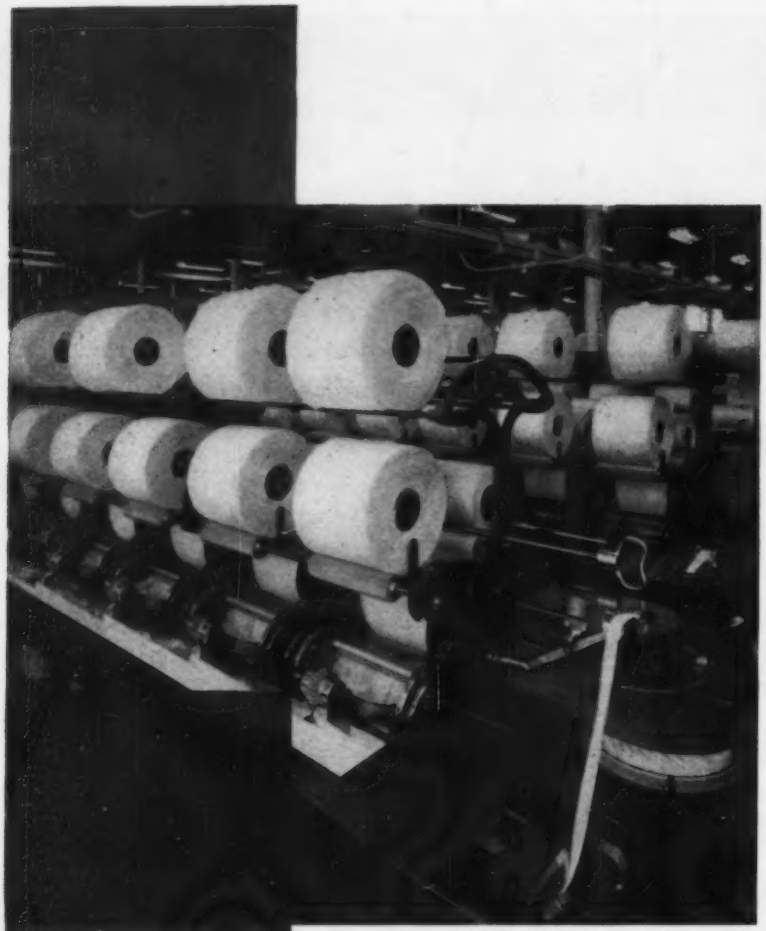

Sauce for the Gander?

Like most, you probably have a number of machines on your production line that were equipped from the start with Bijur Automatic Lubrication. If so, you've probably noticed that these Bijur-equipped machines cost slightly less to maintain and are slightly better producers than most of their neighbors. On one machine, of course, the difference may be small. But multiplied by the total number of machines on your production line, the difference becomes one that your Cost Accounting will spot just as quickly as your machine operators.

And it can be done. Bringing every machine up to par with a Bijur Lubricating System is a lot easier than you might expect. Inexpensive, too. Why not write today for complete information on how (and for how little) Bijur can be added where needed?

BIJUR LUBRICATING CORPORATION

155 West Passaic Street • Rochelle Park, New Jersey

Pioneers in Automatic Lubrication

4215

PERSONAL NOTES

(from page 36)

ates which appeared in the September issue.

Jules Lavner has joined Waumbec Mills, Inc., New York, N. Y., and will assume the fabric development duties previously handled by **Howard Shapiro**, director of fabric and product development, who has been given added merchandising responsibilities.

George I. Rounds has been appointed director of field operations for Tyrex, Inc. Mr. Rounds will be located in the Akron office.

Raymond K. Flege has joined the Georgia Tech faculty as professor of textile engineering in the A. French Textile School. Mr. Flege is president of the National Council for Textile Education. At Georgia Tech, his principal instructional duties will be in the field of textile chemistry. In addition, he will be active in the expansion of the textile graduate and research programs.

Edward W. S. Calkins, formerly fiber technologist with U. S. Rubber Co., has returned to the U. S. Department of Agriculture at Clemson, S. C. In his new position as cotton marketing specialist, he will analyze the relative values of such properties as fiber length, length distribution, strength and fineness as they affect manufacturing performance

Continued on page 40

New officers of the Carded Yarn Association are: (seated, left to right) president **W. R. Austin**, vice-president of Avondale Mills, Sylacauga, Ala., and first vice-president **B. D. Banks**, vice-president of Habersham (Ga.) Mills; (standing, left to right) executive vice-president **E. O. Fitzsimmons**, Charlotte, N. C.; retiring president **O. Leonard Moretz**, president and treasurer, Carolina Mills, Inc., Maiden, N. C.; and second vice-president **J. M. Ledbetter, Jr.**, president and treasurer, Ledbetter Mfg. Co., Rockingham, N. C.

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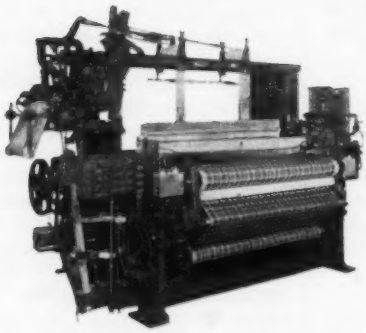
MAINTENANCE COSTS on the C-7 Loom are reduced because many mechanical assemblies have been eliminated. Not only are there fewer critical adjustments to get out of order but also less replacement part expense and delay.

A few wires and switches have literally replaced 100 parts. Gone are most mechanical driving, shipping and protection levers and linkages, and much of the warp stop motion. Drive units are out in the open, easy to service.

In addition, the C-7 operates more smoothly so that there is less wear and tear on the loom. Better binder control prolongs life of pick motion parts, and the electric brake allows soft stops—even protection stops—to reduce fixing.

Weavers, fixers and plant supervisors have been impressed that the C-7 requires so little down time for maintenance. Its potential savings make maintenance one of the most important of our six control areas. Write us if we might discuss it further with you, or if you'd like a reprint of any in this series you may have missed.



QSEWMT

QUALITY OF CLOTH · SPEED OF LOOM
EFFICIENCY · WEAVER ACCEPTANCE
MAINTENANCE COSTS · TRAINING TIME

CROMPTON & KNOWLES CORPORATION

WORCESTER, MASSACHUSETTS

C&K

WORLD LEADERSHIP IN AUTOMATIC BOX LOOMS–RESEARCH–ENGINEERING–MANUFACTURE

CHARLOTTE, N. C. / ALLENTOWN, PA. / CROMPTON & KNOWLES JACQUARD & SUPPLY CO. PAWTUCKET, R.I. / CROMPTON & KNOWLES OF CANADA, LTD., MONTREAL, QUEBEC

PERSONAL NOTES

(from page 38)

and product quality, and investigate the extent to which these quality factors are, or can be, taken into consideration in the pricing of cotton.

A. Henry Thurston, for many years director of the textiles and clothing division, U. S. Department of Commerce, has retired. Mr. Thurston will continue to make his home in Washington and will aid companies and organizations seeking assistance in Governmental matters.

Leon Tigler has been named assistant director of research and development for American Finishing Co., Memphis, Tenn. **Harold Keels** has assumed duties as superintendent of dyeing.

M. Earl Heard has accepted a position as an adviser on cotton utilization research to the Southern Utilization Research and Development Division of the U. S. Department of Agriculture. Mr. Heard is vice-president in charge of research for West Point (Ga.) Mfg. Co.

Pump almost anything with

GRACO STAINLESS STEEL PUMPS

- peanut butter
- detergents
- molasses
- waxes
- syrup
- fatty acids
- insecticides
- creams
- jelly
- bleaches
- dough
- inks
- cosmetics
- tar
- tallow
- Hydro-floric acid
- plastic shortenings
- creosote
- lye
- glue
- carbonic acid
- mastics
- drugs
- alkaline brines
- resins
- enamels
- petroleum jelly
- almost anything that isn't solid

And this is just a *partial list* of hard-to-handle materials that are being pumped daily by Graco Stainless Steel Pumps.

Graco Stainless Steel Pumps are UL approved and are air-powered for complete safety . . . even in explosive atmospheres. For complete information on how to safely, quickly move your "handle-with-care" materials, *direct-from-drum,* see your Graco Dealer today!

GRACO
ENGINEERS AND MANUFACTURERS

GRAY COMPANY, INC.
1124 Graco Square
Minneapolis 13, Minnesota

See Phone Book Yellow Pages, Spraying, for Graco Suppliers

OBITUARIES

Phil Adler, 50, general manager of Putnam (Conn.) Herzl Finishing Co.

Norman Berman, 29, vice-president of Harris Knitting Mills, Fainer Knitting Mills, and Shafer Knitting Mills, all of Canada.

James Broderick, 61, retired superintendent of Hoosac Mills, North Adams, Mass.

Luke J. Castile, 69, retired representative of Keever Starch Co.

John Christison, 48, former executive of Peerless Woolen Mills and an associate in Rossville Yarn Processing Co., Chattanooga, Tenn.

Herman L. Cohen, 54, former owner of the O. K. Skein Dyeing Co., Paterson, N. J.

John Letcher Crist, 71, founder of the Southwest Dyestuff Co., Mount Holly, N. C.

J. H. Culver, 57, circulation representative of W. R. C. Smith Publishing Co., Atlanta, Ga.

Joseph M. Finkelstein, 79, president of Atlantic Knitting Corp., Providence, R. I.

William H. Kennedy, 85, treasurer and a founder of Standard Yarn Co., Worcester, Mass.

Louis Maiss, 51, head of Rivoli Knitting Mills, Yonkers, N. Y.

William E. McDaniels, 60, director, vice-president, and production manager of The William Carter Co., Needham Heights, Mass.

Harvey Pontz, 79, retired founder and former owner of Pontz & Pontz Silk Co., Allentown, Pa.

Hubert D. Raby, engineer with Robert & Co., Associates, Atlanta, Ga.

Philip J. Rappoport, 95, long-time textile dyeing and finishing industry figure, Paterson, N. J.

Troy B. Stone, 61, retired director of public relations for Fulton Industries, Inc., Atlanta, Ga.

Hord Stubblefield, 68, retired cotton buyer with Abney Mills, Greenwood, S. C.

Clifford B. Terry, 76, retired from Foster Machine Co., Westfield, Mass.

Thomas P. Townsend, 54, assistant secretary of J. P. Stevens & Co., Inc., and manager of the Watts Mill, Laurens, S. C.

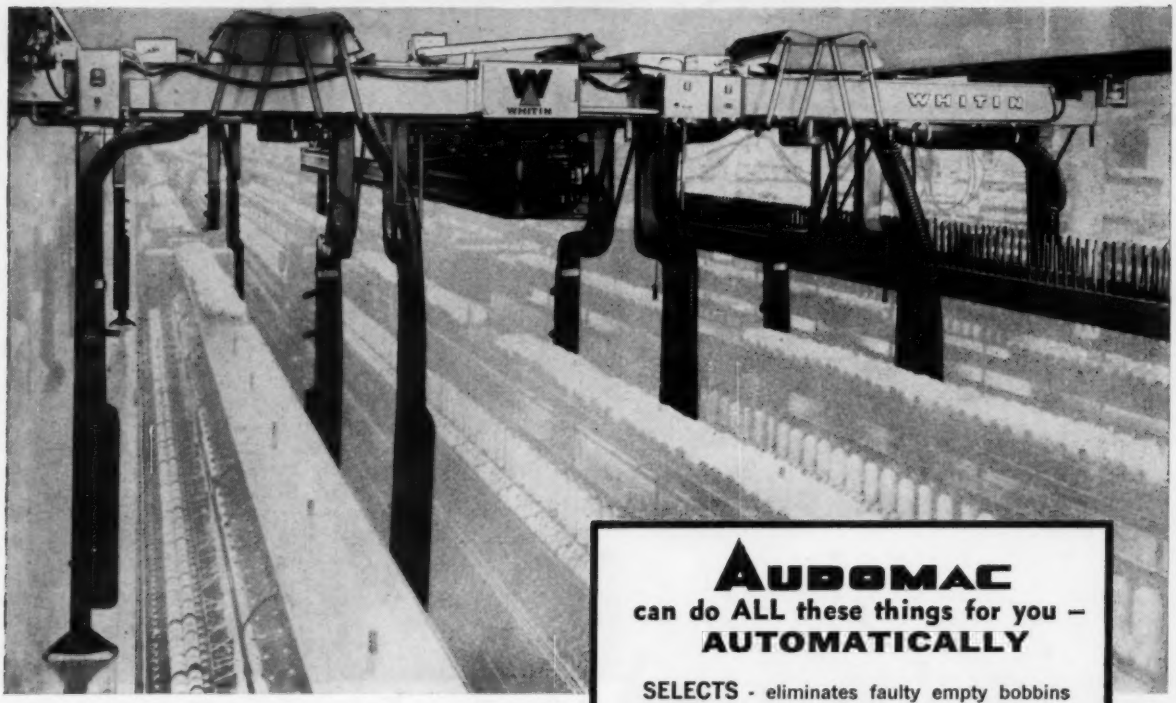
M. Harry Whelan, 84, former purchasing agent for the Pepperell Mfg. Co., Biddeford, Me.

S. N. Moses, superintendent of West Cotton Mill, West, Texas.

For further information use Handy Return Card, Page 167

W . . . More than just a doffer and only WHITIN has it!

AUDOMAC



The AUDOMAC is far more than just an "automatic doffer" — it is a complete bobbin handling system — a system tested through the doffing of over 5,000,000 bobbins in actual mill operation — a system destined to play a major role in shaping the spinning mill practices of the future.

The AUDOMAC Doffer System in months of 144-hour-per-week actual mill operation has dramatically demonstrated its capacity to *increase overall spinning room efficiency by:*

- **Increasing yarn production**
- **Reducing direct labor costs**
- **Providing for improved quality control**
- **Establishing basis for extended materials handling systems**
- **Reducing cost of personnel training**

Call your Whitin representative today about the AUDOMAC . . . only Whitin has it!

(Manufactured and marketed exclusively by Whitin in the United States under license from Deering Milliken Research Corporation.)

AUDOMAC
can do ALL these things for you — AUTOMATICALLY

SELECTS - eliminates faulty empty bobbins

LOADS - frame load of empty bobbins constantly available

TRANSPORTS - bobbins carried, in sequence, at frame signal, to and from spinning frame and to subsequent processes

DOFFS - complete frame of any length doffed in two minutes downtime — 6 to 15 doffs per hour — with less yarn damage

DONS - averages fewer ends down than manual doffing

MONITORS - provides for better quality control by holding bobbin sequence

CLEANS - performs superior frame, floor and ceiling cleaning during doffing cycle

WHITIN MACHINE WORKS

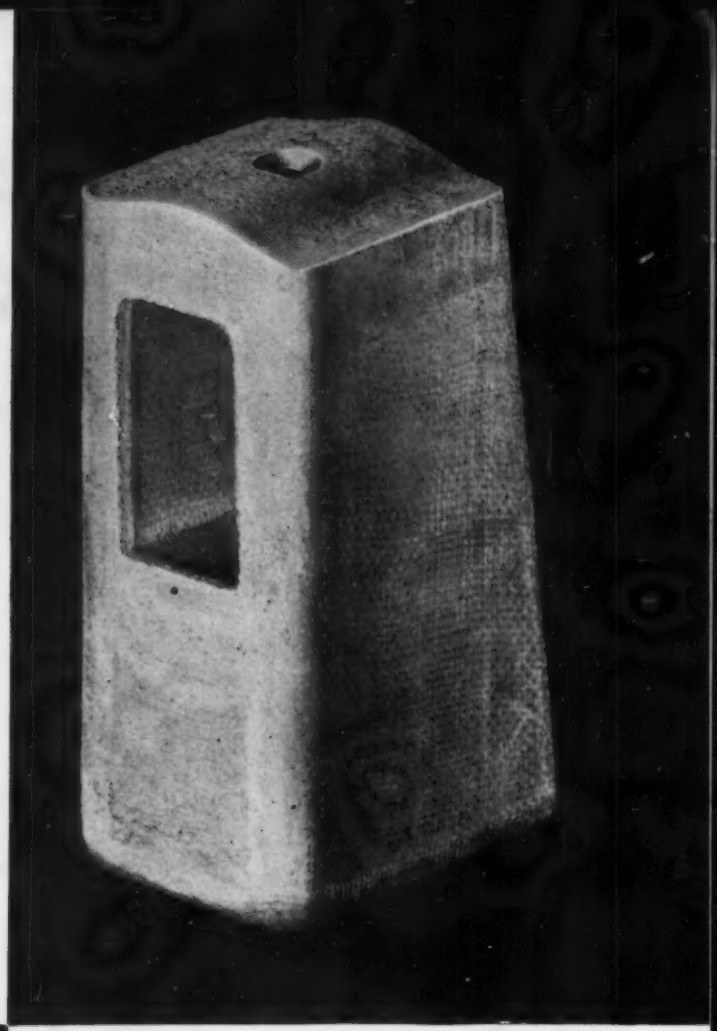
WHITINSVILLE • MASSACHUSETTS

CHARLOTTE, N. C. • GREENSBORO, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.

The best way to better yarns

You name it,
Dayco makes it...

a Thorobred Picker to handle any assignment!



1. Dayco Thorobred Premium Loop Picker, readily identified by its gold back . . . rugged and always reliable.

Newest of Dayco's Thorobred Drop Box Pickers is the Golden Thorobred, fully molded in one piece from an ultra-high molecular polyester. Careful in-use studies show that its life expectancy is 10 times that of the conventional picker. If you've used the Golden Thorobred Drop Box Picker and liked it, you may wish to try the Golden Thorobred Loop Picker, now available in many sizes.

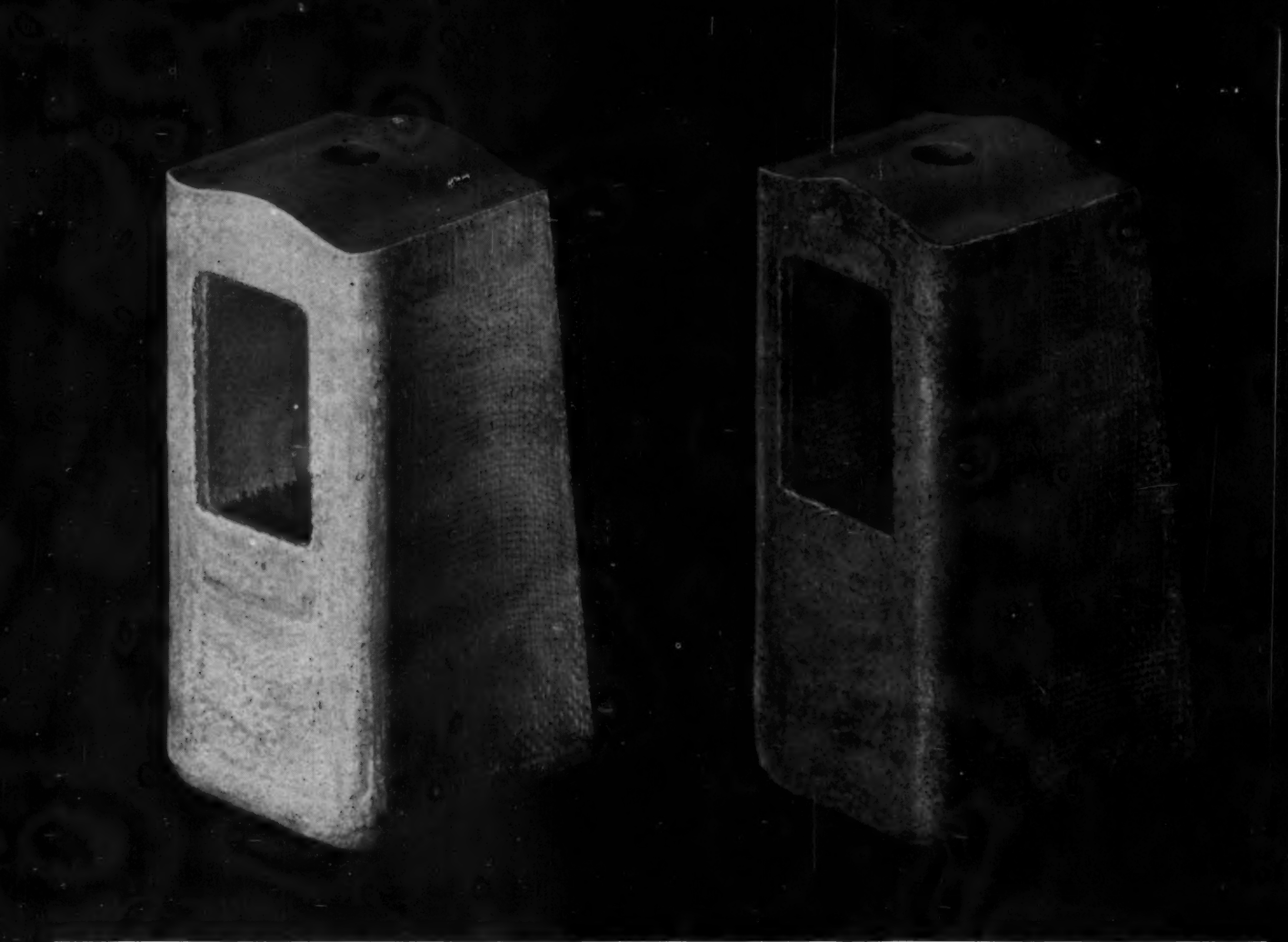
Meet the full family of Dayco Thorobred Loop Pickers! With their help, you'll substitute high production levels for the down-time so often resulting from picker trouble. You'll see the difference in cloth quality that superior picker performance can make. And you'll see a big difference in *quantity*, too.

First, the Dayco Premium Picker. It's really rugged —so sturdy and resilient it amazes even experienced mill men. Once they've become accustomed to its superior performance—even in operations that require the very best—they're sold on Dayco Premium! And little wonder. Keeping perfectly in time through millions of picks, the Premium stays on the job far past normal time for replacement.

Bring On Your Toughest Assignment

Perhaps the best way to explain what the Dayco Premium Picker can do is simply to say: bring on your toughest assignment. See the way that this quality loop picker will tackle it. You'll like what you see.

A second outstanding loop picker from Dayco is the Dayco Thorobred Super. Very likely you're already familiar with the Super, for its record of fine



2. Dayco Thorobred Super Loop Picker, white with red back . . . designed with modern loom requirements in mind.

3. Dayco Thorobred Standard Loop Picker, black with red back . . . for excellent service on E model looms and slower.

performance comes into the conversation almost as often as textile men talk shop together.

Like the Dayco Premium, the Super is fully able to cope with the demands of modern weaving equipment. It's able to withstand the weight of heavier plastic shuttles . . . it's at home with longer quills and higher loom speeds. Use the Dayco Thorobred Super Loop Picker and see if you don't agree: its ability to withstand the continual thrust of the shuttle—without loosening or early wear—is truly impressive.

Pay For What You Need

Economy of operation dictates, of course, that you pay for no more than you need. Yet, even where less is required of a picker, it must fully measure up to what *is* required, or "economy" turns into expense and waste. Dayco again supplies the answer: the Dayco Thorobred Standard Picker, recommended for E Model and slower looms.

Like the Premium and the Super, the Dayco Standard Picker is built in one piece. There's nothing to break or distort when it's driven onto the stick. And, like all Dayco Thorobred Pickers, the Standard gives perfect shuttle contact. The picker-stick hole is slightly tilted. The flared bottom permits easy, accurate seating. And the Standard stays exactly in position, for perfect alignment with the shuttle.

Pick a Dayco Picker

How can a lower-priced picker offer so much? The answer is simple. Dayco engineers design *each* picker to measure up to the demands that will be placed on it. But the same basic principles . . . procedures . . . and precision that help make the Premium as good as it is are adhered to in producing *every* Dayco picker.

Premium, Super and Standard, they're available in many sizes, to meet every possible requirement. So to pick the picker that's best for any given operation, simply contact your Dayco jobber. Or write or phone Dayco Textile Products Co., 401 S.C. National Bank Bldg., Greenville, S. C., for further information. Overseas Plant: The Dayton Rubber Co., Ltd., Dundee, Scotland.

Dayco TEXTILE PRODUCTS

Dayco

Division of Dayco Corporation

DIRT-RESISTANT Tennantized floor allows faster sweeping. Saves manhours.

Why most money-making mills have TENNANT-maintained floors

Mills that make money *today* usually know their maintenance costs to a penny.

That's why about 9 out of 10 successful mills, large and small, use the TENNANT SYSTEM of Floor Maintenance.

They know, from their own cost records, that this system provides clean, bright floors *at the lowest cost per sq. ft. of any floor maintenance method* available today. Here's why:

SAVES MANHOURS—*Tennantized* floors have 3 times the dirt resistance of most textile floors. Saves cleaning time, cuts sweeping costs, etc.

How the TENNANT SYSTEM cuts floor care costs...

1 **SAVES TIME.** Dirt is easily wiped off surface.

2 **SAVES FLOOR SEAL.** Tennantized floors seldom need refinishing.

3 **SAVES BUFFING.** New method brightens floor; cuts buffing time as much as 80%.

REQUIRES LESS FLOOR SEAL—New custom-fitted TENNANT seals are *extra* durable, dirt-resistant and easy to clean. Cuts annual seal costs and recoating expense. WRITE TODAY *for full details. G. H. Tennant Co., 735C N. Lilac Drive, Minneapolis 22, Minn.*

TENNANT

The Textile Industry's Most Widely Used

FLOOR MAINTENANCE SYSTEM

Methods

Machines

Materials

FLOOR MAINTENANCE SYSTEMS

MILL NOTES

Burlington Industries, Inc., has extended its investments in European textile operations through an agreement with **Cyril Lord, Ltd.,** of England. The companies have entered into an agreement for the mutual exchange of technical information and service, and will jointly explore the United Kingdom and continental markets in connection with textile products of common interest.

Indian Head Mills, Inc., has announced the acquisition of **Joseph Bancroft & Sons Co.** The latter company will continue under its present management as a subsidiary of the parent firm.

Clarence L. Meyers & Co., Inc., has purchased **Ewing-Thomas Corp.,** well known in the mercerized cotton yarn field. The latter firm operated two plants in Chester, Pa., which will be run as a division of the parent firm. Except for modernization and the installation of additional equipment, little change is anticipated in the operation of the plants.

The 105,000 sq ft building formerly occupied by **Lafayette (Ga.) Mills, Inc.,** has been purchased by **Lafayette Hosiery Mills, Inc.** All operations of the latter firm will be transferred into the new acquisition.

The Bishopville (S. C.) Finishing Plant of **Reeves Bros., Inc.,** has announced that they are now in a position to handle a greater volume of stretch fabrics and can assure their customers of prompt delivery. The plant specializes in the dyeing and finishing of all types of stretch fabrics. * * * The parent firm has announced that Fab-Lace, Inc., New York, has been granted a license to laminate its own goods using the Reeves' patented heat laminating process.

Flagg-Utica Corp. has leased the building formerly occupied by Cooper's, Inc., in Wadley, Ga., for the manufacture of knitted sportswear. It is anticipated that 300 persons

Continued on page 52

IDEAL REVOLUTIONIZED DRAWING

Any one of Ideal's many improvements in the drawing process was a great step forward by itself. Taken together they add up to a truly revolutionary advance and a valuable contribution to the textile industry.

IDEAL GAVE YOU HIGH SPEEDS

Until 1948, mill men and machinery manufacturers were convinced that quality work could not be produced with drawing speeds in excess of 90 to 110 FPM. Since then Ideal engineers have introduced one improvement after another so that today Ideal Feathertouch® Drafting frames are producing superb sliver at six to eight times the pre-Ideal speeds.

IDEAL IMPROVED SLIVER QUALITY

Ideal's patented ball bearing spacer sections, replacing turning collars, eliminate cutting, bruising or damaging of fibers. Ideal's evener action in third and fourth line of rolls automatically evens out thick and thin places, producing more even sliver. Ideal's exclusive flute construction imparts a strength-increasing crimp to the fibers, enabling longer staples to carry the shorter staples through each drafting zone. Ideal's ball bearing construction eliminates danger of oil spots. Ideal's Vacuum System keeps sliver cleaner and reduces slubs. All these add up to Ideal's famous "Feathertouch"® action—immeasurably superior to any other drawing frame action.

IDEAL ADAPTION TO CHANGING REQUIREMENTS

The Ideal Feathertouch® Drafting System is readily adaptable to processing carded and combed cotton, wool and all types of synthetics and blends, of staple lengths ⅞" through 3".

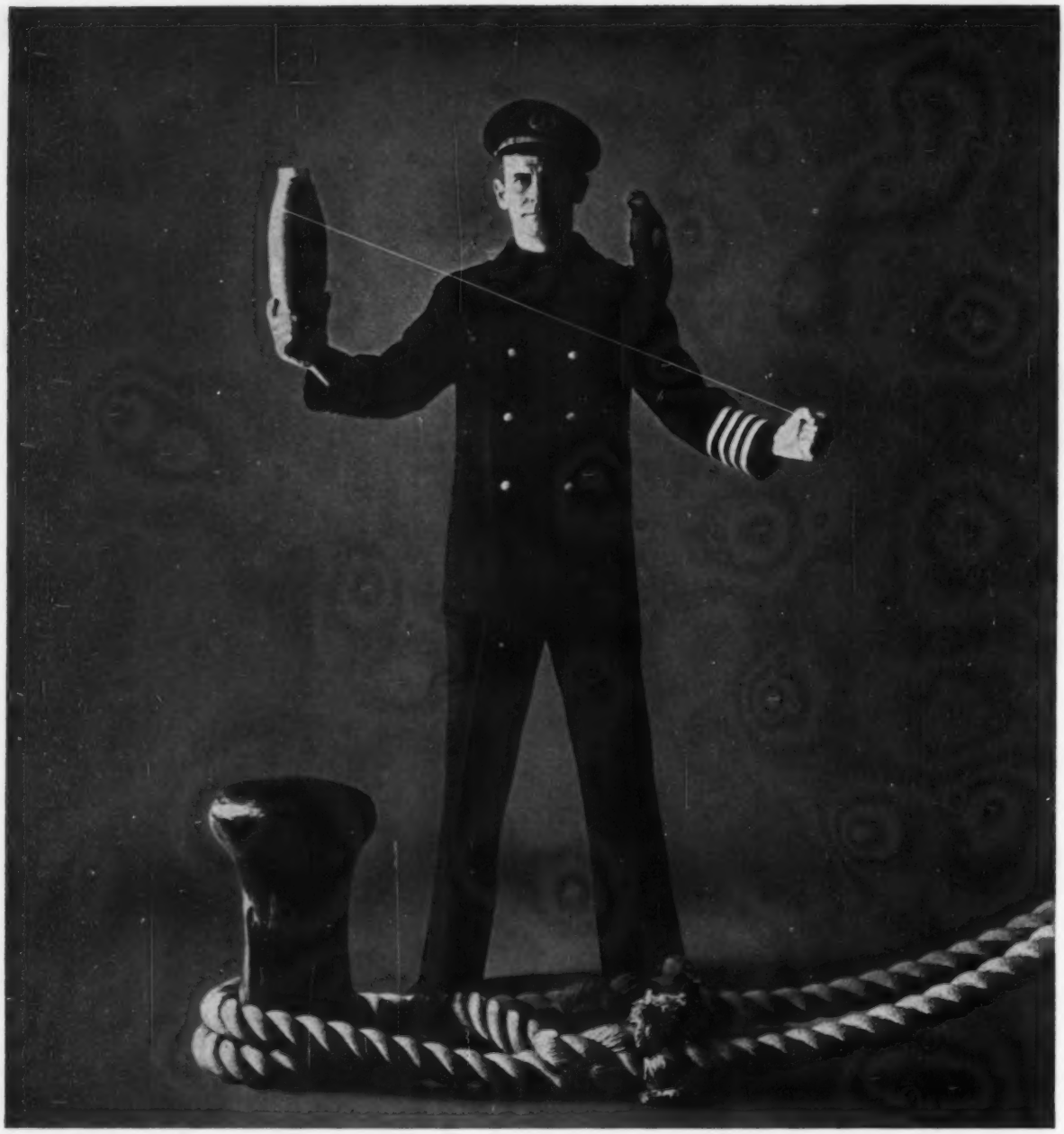
IDEAL CUT COSTS

Ideal Drawing Frames require fewer adjustments, less power and fewer replacements. High production and extremely compact construction saves floor space. Per pound of sliver, the New Ideal Drawing Frame is your most economical drawing.

Some of these improvements have since been copied or equalled on other drawing equipment but the most significant ones are covered by patents and will be found only on Ideal Feathertouch® Drafting. So, to get the best, get Ideal. Let us send you full information.

Ideal Industries, Inc.
Bessemer City, N. C.

THE ORIGINATORS OF HIGH SPEED DRAWING



He's using a tougher yarn . . . why aren't you?

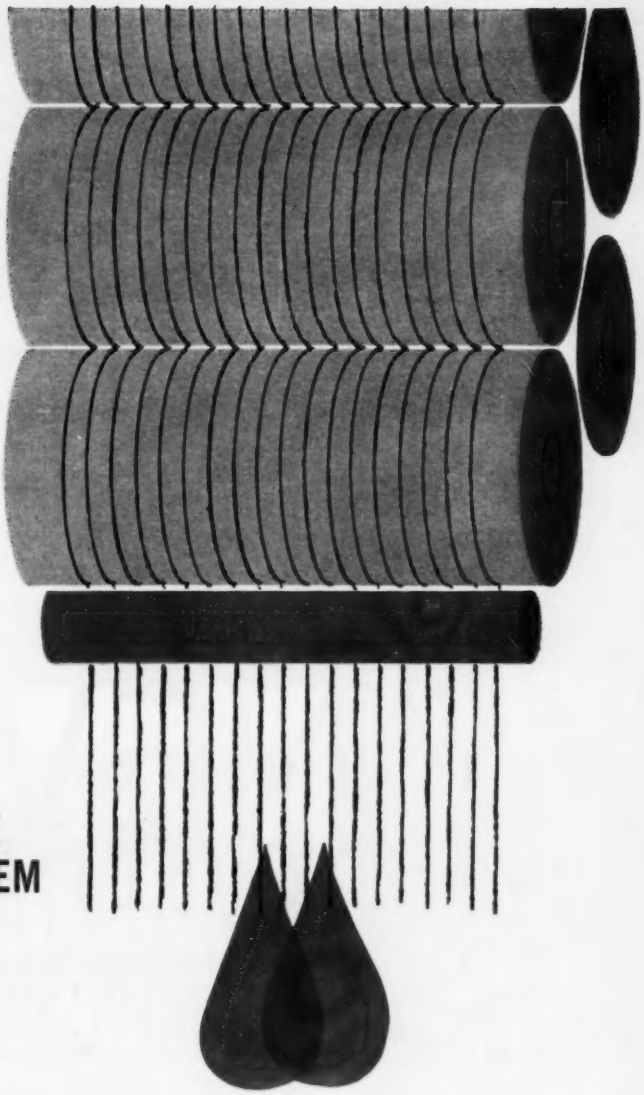
It takes a tough yarn to moor a ship—and tough is the word for high-tenacity Golden Caprolan® nylon by Allied Chemical. But Golden Caprolan is more than just tough. It is a remarkably versatile yarn that offers a unique combination of superior performance qualities: unsurpassed resistance to abrasion, excellent rubber adhesion, greater resistance to flex-fatigue, excellent troughing qualities, to name a few. Golden Caprolan established a new standard of strength for marine cordage and a new criterion for heat stability in nylon tire cord. Golden Caprolan is also performing superbly in conveyor belts, industrial webbings, tarpaulin fabrics and many other applications where heavy-duty performance is essential. If you have a tough job, we have the tough yarn for it. Our technical service staffs are ready to help you.

Allied Chemical

Fiber Marketing Dept., 261 Madison Ave., New York 16, N. Y.

GOLDEN caprolan NYLON FOR THE 60's

For further information use Handy Return Card, Page 167



NEW MOISTURE CONTROL SYSTEM GIVES EXTRA-FAST RESPONSE FOR HIGH-SPEED SLASHERS

The new Honeywell *Moist-O-Graph IV* Control System delivers the extra-fast response needed to effectively measure and control regain of yarn on today's high-speed slashers.

Heart of the system's fast response is the new DPP (*Deviation Proportional Pulse*) Control Unit. By employing a new correcting technique, the DPP unit overcomes the production problems usually encountered with high-speed slashers equipped with conventional moisture control units.

In conventional systems, when the moisture deviates from the desired value, the control unit sends a correcting pulse of a fixed duration to the motor controlling the speed of the slasher. If, after a preset interval, the moisture content has not returned to this desired value, another correcting pulse—still of a fixed duration—is sent. This is repeated until the desired regain is reestablished. On high-speed slashers this means that a lot of yarn races through the machine before the control unit can effect the proper regain.

With the DPP unit in the *Moist-O-Graph IV* system, correcting pulse signals to the motor are of a *duration directly proportional to the magnitude of the deviation* from the desired moisture content. The control unit quickly adjusts the slasher speed before any appreciable amount of yarn goes by. The desired per cent regain is held for practically the entire run.

For specific details on how the new *Moist-O-Graph IV* Control System can improve *your* high-speed slasher operation, contact your nearby Honeywell textile field engineer. He'll be glad to examine your production requirements, make detailed recommendations, and provide supervision for the complete control installation to ensure optimum performance. MINNEAPOLIS-HONEYWELL, Wayne and Windrim Aves., Phila. 44, Pa. In Canada, Honeywell Controls, Ltd., Toronto 17, Ontario.

Honeywell

First in Control

SINCE 1906

HONEYWELL INTERNATIONAL Sales and Service offices in principal cities of the world. Manufacturing in United States, United Kingdom, Canada, Netherlands, Germany, France, Japan.

ACME
STEEL
NEW!
A SIMPLER, FASTER,
COMPRESSION
STRAPPING
MACHINE

Acme Steel by-passes frills and fancy housings to produce the most compact and efficient compression strapping machine in the textile industry—the all-new F11

Even *four different size boxes* per minute are a pushover—thanks to Acme Steel's exclusive dual-height platen regulators. They're only one of many innovations that make the F11 second to none in high productivity and low operating cost. The F11 is a full-size machine. It handles the *complete* compression strapping cycle through effortless pushbutton control. But:

. . . you won't find a pound of unnecessary, space-stealing housings
. . . you won't find a speck of complex and costly electronic circuits
. . . you won't find a seldom used, tacked-on accessory
. . . you won't find a single maintenance problem that takes a crew and a crane to solve.

Four bolts unfasten the strapping mechanism. This slim, trim unit is so simple *one man* can remove it for service—even replace it with a standby—within five minutes.

Basic F11 design has been proved in dozens of installations. Through pushbutton control, you can convey, compress and strap any size box. You can apply three straps at once . . . as many as twelve per minute.

The machine does the adapting, not you. It can be designed to operate pneumatically or hydraulically. It can be set to compress with the exact amount of pressure you want (up to 10,000 pounds). It can be equipped to feed strap through double-face pallets. It can be ordered for fully-automatic or semi-automatic operation. And the portable control console can be positioned in the most convenient location.

More performance per pound and more dependability per dollar is the reason why 50 textile plants are equipped with Acme Steel compression strapping machines (representing over 90% of *all* machines in use). Have your local Acme Idea Man explain all the fine points of this one. Or, return the coupon to arrange to see the F11 in action on film.

You can compress and strap four boxes a minute (even varying sizes) with up to three straps per box. The portable console lets the operator double-up on jobs—like weighing a completed box while the machine straps the next.

The fully-automatic F11 conveys boxes into the machine on powered rollers. A centering device lines up boxes perfectly. Non-compressible units can be strapped without interrupting production thanks to a platen cut-off.

The semi-automatic F11 compresses the box automatically. An anti-canting mechanism keeps the platen level, even on off-center units. (Powered platen rollers and the box centering device are optional on the semi-automatic model.)

ACME STEEL IDEA LEADER IN STRAPPING

Acme Steel Products Division ACME STEEL COMPANY
Dept. TAS-111, 135th Street & Perry Avenue, Chicago 27, Illinois

- ☐ Please send full-facts folder on the new F11 for the textile industry.
- ☐ Contact me to arrange for showing of new F11 movie.
- ☐ Have Acme Idea Man call.

NAME _____

TITLE _____

FIRM _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

CHARLTON WOOLEN COMPANY USES

CHARLTON CITY, MASS.

HERR "M" TYPE CONICAL RINGS

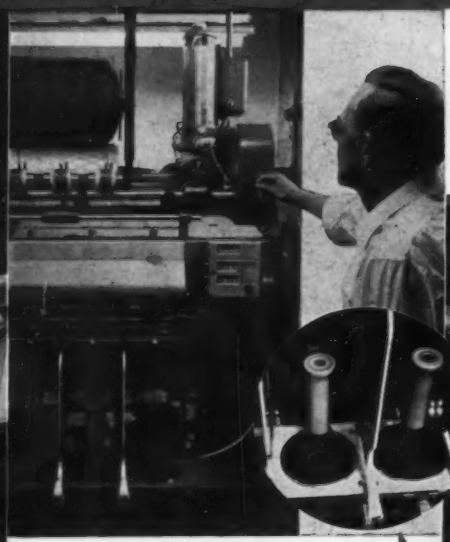
WITH AUTOMATIC PRESSURE LUBRICATION

For Better Oil distribution (minimum amount)
— on the path of the traveler

No oil scattering
— on the machine to create maintenance problems
— on the yarn to degrade quality

Benefits

LONGER LIFE OF RINGS AND TRAVELERS
HIGHER SPEED OPERATIONS
IMPROVED PRODUCT
REDUCED OPERATING COST



With Herr "M" Type Rings and Controlled Automatic Pressure Lubrication, "YOU DON'T HAVE TO DEPEND ON THE TRAVELER TO SPREAD THE OIL" says Bob Gard.

Bob Gard, who is overseer of spinning, inspects frames that have been in operation for almost three years.

Illustrations show one of the modern installations at Charlton Woolen Company, Charlton City, Mass., manufacturer of coatings and snow suiting fabrics.

Here's how the system operates: Herr "M" type conical rings contain an oil reservoir running completely around the ring. From this reservoir, seams carry the oil by capillary action to the top and side bearing surfaces of the ring so that the paths of the traveler are continuously lubricated... but with a minimum of oil.

The reservoir is supplied with oil by an automatic pressure system that can be set to give just the right amount of oil . . . eliminating troublesome waste.

After the pump cycle has been established, no supervision is needed. Higher speeds and improved products are possible.

Write for complete information.

HERR MANUFACTURING CO., INC.

310 FRANKLIN STREET • BUFFALO 2, N.Y.

For Spinning and Twisting Worsted • Woolen • Rayon • Nylon • Orlon • Fiberglass and Blended Yarns of all Types

For further information use Handy Return Card, Page 167

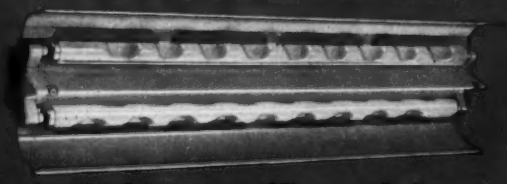
WHEELER ENDS CORROSION TROUBLES

The New Wheeler 8600 Line is a natural for all textile installations where fumes, moisture or corrosive conditions require rugged fixtures. The 8600 Line has the well-known "Wheeler Quality" porcelain enamel on its reflectors. This fused glass finish resists the most corrosive atmosphere, and retains for life its light reflecting ability. For severe service conditions, special top channels completely finished in white porcelain enamel can be furnished. Occasional damp cloth cleaning restores the original high reflectivity. Other metal parts have long life due to treatment in our exclusive phosphate baths prior to being treated with a special formulation of baked aluminum enamel. Hardware is zinc plated for superior corrosion resistance.

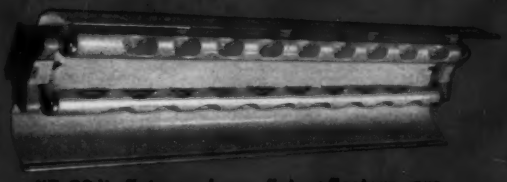
Bead Detail

For greater cleanliness, Wheeler reflectors have their edges *turned in*. This unique design prevents the dust, lint and moisture collection common to all fixtures with "out-turned" edges. The generous uplight component provides more comfortable seeing. The 8600 Line is available with Slimline, Rapid Start, Bi-Pin, 800 and 1500 ma lamps. Plastic prismatic lenses, louvers and wire guards are among the accessories offered.

Due to careful engineering and manufacturing ability, we are able to offer these units at extremely attractive prices. Send today for the full details about these rugged textile fixtures.



"V 25" fixtures have "V" type reflectors providing 30° crosswise shielding and 22% uplight.



"F 20" fixtures have flat reflectors providing 15° to 18° crosswise shielding as well as uplight.

"P 30" fixtures employ a plastic "Krystalens" which offers almost total lamp shielding while utilizing the uplight feature.

The superior light distribution and shielding of the Wheeler 8600 Line is dramatically shown in this smoke demonstration test.

Send for complete details today.

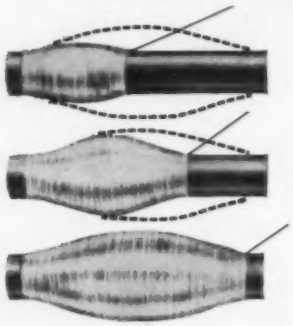
WHEELER REFLECTOR WR

Company • Division Franklin Research and Development Corp.

MAIN STREET, HANSON, MASSACHUSETTS

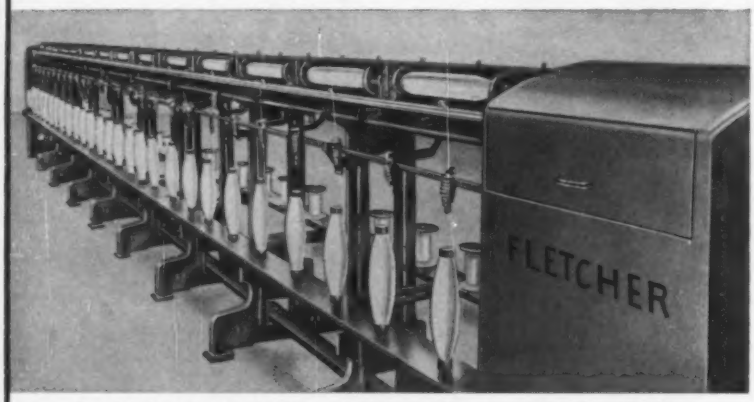
NEW FLETCHER FILLING WIND REDRAW

WINDS PIRN PACKAGE
WITH CONTINUOUS
TENSION-FREE DELIVERY



Exclusive new method of yarn build-up eliminates tug and pull

Not only provides you with a perfectly controlled package, but eliminates need for coning — and winds at double the speed of a coner.



For high speed winding of Nylon, Glass and all Synthetics

Look for features never expected from a redraw machine. Perfect wound bobbins at high speeds—500 to 750 rpm per 2-pound bobbin . . . filling wind pirn package . . . standard pirn package . . . bottle bobbin and straight bobbin.

TRY BEFORE YOU BUY with 3-month trial rental plan

Get proof before you pay by evaluating these machines in your own plant. They are available for delivery, completely assembled. See them in operation in the Fletcher Industries Showrooms in Cheltenham (Philadelphia), Pa.

FLETCHER INDUSTRIES

Hasbrook Ave. and Beecher St., Cheltenham (Suburban Phila.), Pa.

FLETCHER SOUTHERN
SOUTHERN PINES, N. C.

FLETCHER INDUSTRIES
STATESVILLE, N. C.

MILL NOTES

(from page 44)

will be employed at full production. The firm has announced the acquisition of the **Bashore Knitting Mills Co., Inc.,** of Schuylkill Haven, Pa. W. A. Bashore will continue as president of the company and William Dietz will remain as plant manager. J. E. Vilagi has been elected vice-president and treasurer and T. J. Fontana is secretary. The company will continue to operate as in the past, but on an expanded basis.

Royal Mfg. Co., Sandersville, Ga., producers of knit shirts, has employed 30 additional persons.

Tom Gray Mills, Inc., has occupied a plant at Villa Rica, Ga., for production of rayon yarn. Fifty-five people have been employed.

A new firm, **Stroud Custom Carpets, Inc.,** has been organized in Rockledge, Pa., by David H. Stroud, Jr., David H. Stroud, 3rd, and Charles Lachman. Mr. Lachman is president and treasurer, Mr. Stroud 3rd, is vice-president and secretary, and Mr. Stroud, Jr., is consultant.

Geo. C. Moore Co., Westerly, R. I., has announced the formation of Geo. C. Moore Europa, N. V., in association with the **Netherlands American Knitting Co.** of Amsterdam. The firm will produce power nets to supply the common market.

I. A. Wyner & Co., a division of Ames Textile Corp., has announced the acquisition of the knitting, dyeing, and finishing business of **Shawmut, Inc.,** a knitgoods mill.

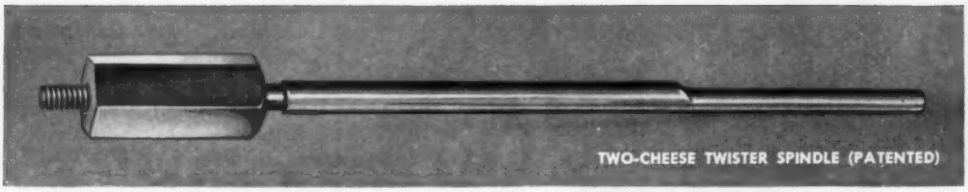
The United Merchants and Manufacturers, Inc., in cooperation with the Philadelphia College of Textiles and Science, conducted an advanced textile training course for the personnel of the company. The course embodied the academic talents of the faculty of the college and the practical knowledge and experience of the company's key executives.

The two Liberty, S. C., plants of **Woodside Mills** have launched a $1.5 million modernization program. Looms now located on the second floor of the No. 1 plant will be housed in a new addition to the weave room, leaving the former space to be converted into an improved and modern cloth room. Ad-

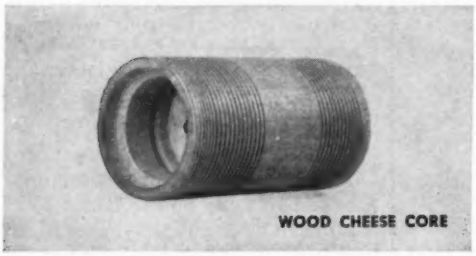
Continued on page 176

For further information use Handy Return Card, Page 167

BARBER-COLMAN ACCESSORIES



TWO-CHEESE TWISTER SPINDLE (PATENTED)



WOOD CHEESE CORE

STAINLESS STEEL DYE SLEEVE

BAKELITE CHEESE CORE SLEEVE

USE THESE BARBER-COLMAN PRODUCTS FOR BEST RESULTS

The accessories shown here are carefully designed and developed by Barber-Colman Company for use on Barber-Colman machines. • The Twister Spindle, used with wood Cheese Cores, is a new idea that makes for better twisting. The offset on the end of the spindle retains the outer cheese and lets it run free of the inner one. Thus, by mounting two cheeses per spindle, the height of the twister creel is reduced. • The stainless steel Dye Sleeves fit the same holders on the Automatic Spooler as the regular plastic Cheese Sleeves and were designed and developed exclusively for this Barber-Colman machine. • Since all of these parts are made of best materials to very close limits, they not only are accurate, uniform, and durable, but also insure *top performance* of your machines.

BARBER-COLMAN SERVICE WILL KEEP YOUR MACHINES AT THE PEAK OF PRODUCTION

For many years Barber-Colman Company has maintained a high-grade Service Department, and made its facilities available to all owners of Barber-Colman equipment at reasonable cost. The men who staff this Department are all experienced hands, trained to handle the special problems of Barber-Colman equipment. They are backed by the knowledge and experience of the entire Barber-Colman organization. You can employ this Service in any manner you wish — on a regular contract basis, for specific problems, or in any emergency. *See your Barber-Colman representative for details.*

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

BARBER-COLMAN COMPANY

ROCKFORD • ILLINOIS • U. S. A.

FRAMINGHAM, MASS., U. S. A. — GREENVILLE, S. C., U.S.A. — MANCHESTER, ENGLAND — MUNICH, GERMANY

INDIA	MEXICO	BRAZIL	JAPAN	PAKISTAN	PAKISTAN
Batliboi & Company Forbes Street, Fort Bombay, India	J. Rabasa Isabel la Catolica 45-913 Apartado 7348 Mexico D.F., Mexico	Industria e Comercio de Maquinas S. A. "COMASA" R. Glicerio, 537/547 Sao Paulo, Brazil	Do-Yei Shoji Kabushiki Kaisha Atlas Building (7th Floor) 11, Bingo-Machi, 3-Chome, Higashi-Ku Osaka, Japan	Associated Agencies (M'cr.) Ltd. Piccadilly House 11 Piccadilly Manchester 1, England	Associated Agencies (M'cr) Ltd. 730, Muhammadi House, McLeod Road Karachi 2, Pakistan

ADVERTISEMENT

Dependability is built into Draper looms . . . part by part. Regardless of size, shape or location, each part is engineered and manufactured to precise tolerances. The Harness Cam Assembly illustrated above, is one reason why Draper has become the accepted name for quality and dependability throughout the textile industry.

DRAPER CORPORATION

HOPEDALE, MASS. • ATLANTA, GA. • GREENSBORO, N. C. • SPARTANBURG, S. C.

RETARDING LOOM OBSOLESCENCE

A steady flow of new Improved Repair Parts keeps mill weaving machinery up-to-date

Draper Corporation is continually improving parts and mechanisms for its looms. Year after year, scarcely a week passes without the introduction of another Improved Repair Part for one or more Draper loom models. These are all designed by Draper research and engineering staffs to keep present mill machinery competitive with our newest looms.

Each Draper Improved Repair Part is made for application to as many mill loom conditions as possible. Although they may be copied by others, the original design of these parts can be successfully accomplished only by the loom builder, for he alone has complete information on the various loom constructions in the field.

These Improved Repair Parts help to keep older looms operating profitably. They postpone the day when a mill must consider its looms to be obsolete.

What is an Improved Repair Part? An Improved Repair Part is one so developed by Draper engineers that is can be applied, as far as possible, to all existing Draper looms in the mills. It is designed to give one or more of the following benefits:

1. Better service throughout a longer life than the original loom part.
2. Easier installation with less down time.
3. Better loom operation.
4. Production of higher quality fabrics.

How Improved Repair Parts are developed. Ideas for Improved Repair Parts originate from Draper engineering and manufacturing de-

ADVERTISEMENT

partments, Construction Committee members, Draper sales and service men, recommendations of material suppliers and, frequently, from suggestions by mill superintendents, overseers, and loom fixers.

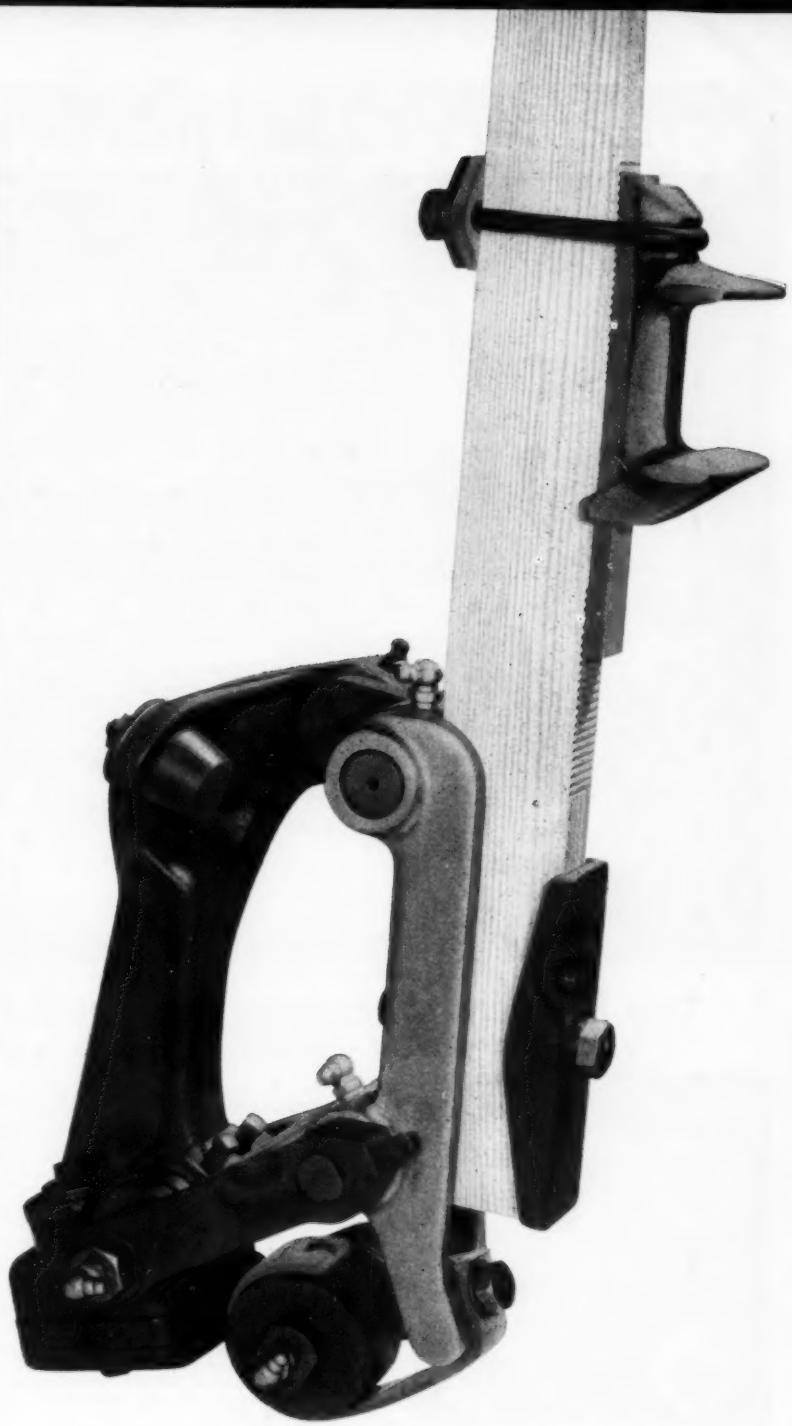
Usually extensive "mill trials" are conducted, whereby a new part proves itself in actual weaveroom operation, before it is offered for sale.

Although Improved Repair Parts are designed to replace older parts, mills often use both old parts and new Improved Repair Parts simply because supply room bins and records are set up for ordering both. Generally the older number could be eliminated to advantage.

Why Draper Parts are best for Draper looms. Uniformity of parts is necessary for successful standardization in setting loom mechanisms to gauge. Worn or poorly fitting parts just cannot be set to gauge. Competitive mills know that only with the best loom parts available can they get uniform and accurate settings, that *only with gauged settings can they get maximum production, lowest weaving costs and highest cloth quality.* These mills are first putting their looms in top condition and then running them with correct and standardized settings.

In such a planned program, differences in initial cost of repair parts are often found to be of least importance. More and more mills are using Draper parts *exclusively* to maintain their weaving machinery at highest competitive standards. Draper parts are made from the same metal mixes as original parts furnished with the loom. They are finished to master overall gauge dimensions available only to the loom manufacturer. Draper Improved Repair Parts fit Draper looms and each other better; as a result, they are dependable and last longer. Correct engineering design, selection of proper materials and use of economical manufacturing methods are determined for each Draper part by a competent knowledge of their effect upon *total loom operation.*

You can find out more about Improved Repair Parts from your Draper Improved Repair Parts Catalog, from Draper sales and service representatives, or by writing to Draper Corporation.



Draper Link Type Parallel . . . provides a positive fully constrained action, contributing to smoother shuttle flight, improved boxing, simplified adjustment and longer life of Shuttle Box and Pick Motion parts.

DRAPER CORPORATION

HOPEDALE, MASS • ATLANTA, GA • GREENSBORO, N. C. • SPARTANBURG, S. C.

"No more tight ends in our warps"

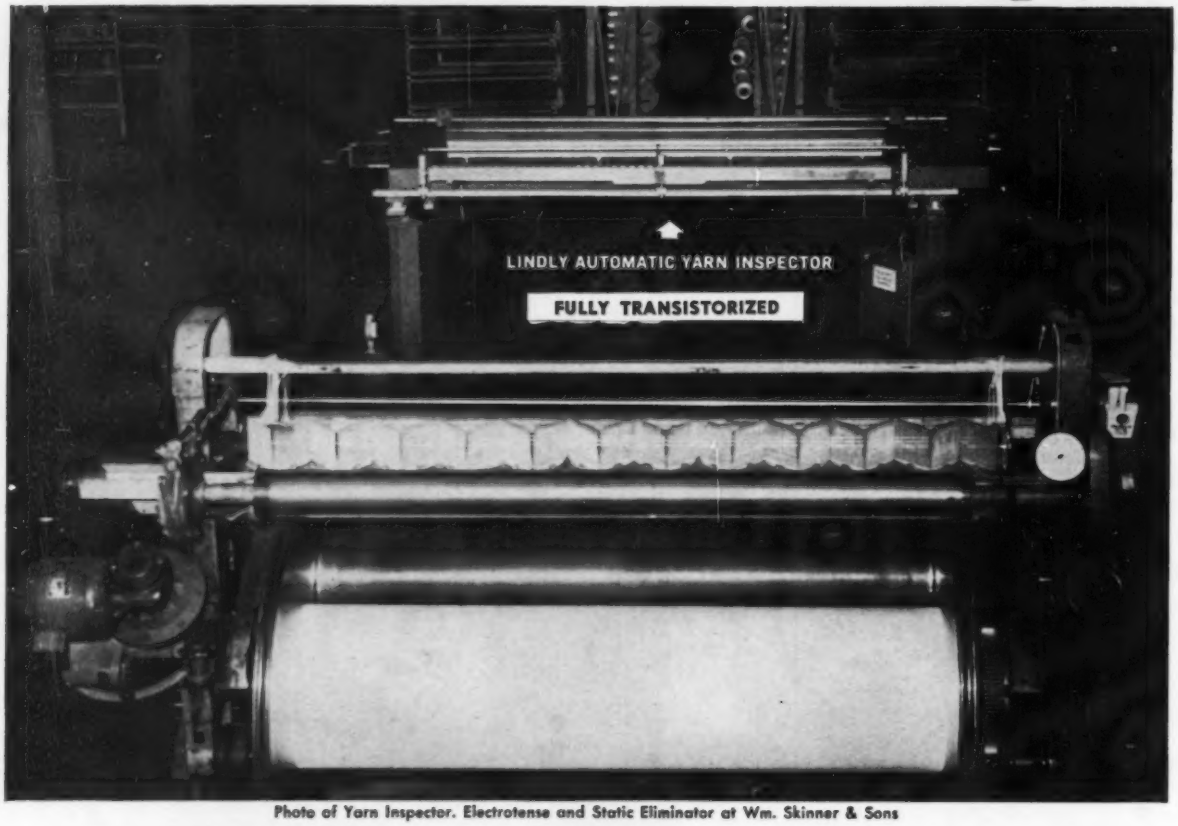
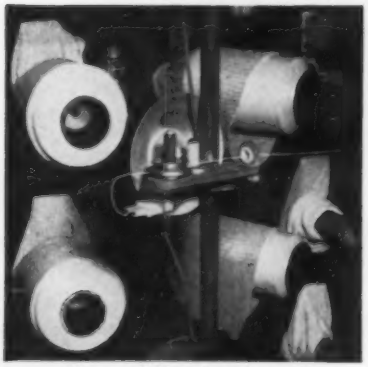


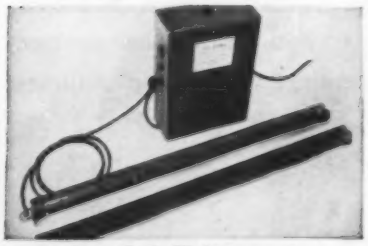
Photo of Yarn Inspector. Electrotense and Static Eliminator at Wm. Skinner & Sons

The LINDLY Electronic Triumvirate Gets the Credit

YARN INSPECTOR – ELECTROTENSE – STATIC ELIMINATOR



Closeup of Electrotense in creel.



Lance Static Eliminator — not visible in installation photo.

When we asked William Skinner & Sons, Holyoke, Mass. for a report on their installation of a Lindly Automatic Warp Yarn Inspector, the Lindy Electrotense in their creel and a Lindy Static Eliminator, their answer was prompt and enthusiastic: "No more tight ends in our warps."

However, when we asked them to go back temporarily to warping without the Lindly controls, so we could get some comparative "before" data, they flatly refused. "Why should we go through that again, when we don't have to?" they asked, and we can't blame them.

Since Skinner didn't need comparative data to prove the value of the Lindly Electronic Triumvirate, we doubt if you would either. So why not try an installation? Here's what the triumvirate is and does:

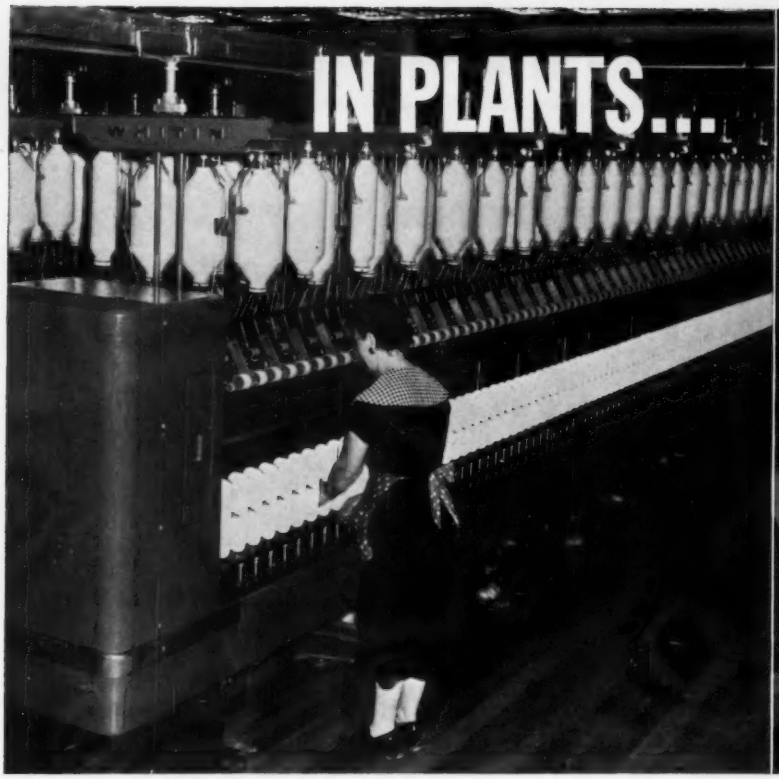
THE LINDLY AUTOMATIC YARN INSPECTOR is a high-speed, ultra sensitive photo-electric instrument for detecting yarn defects in warps, such as broken filaments, strip-backs and fluff balls. It can be made to operate a counter, a signalling device, or to actuate a machine stop switch — singly or in combination for any degree of imperfection.

THE LINDLY ELECTROTENSE for warp creels, winders, twisters, knitting machines, etc. provides completely uniform tension for any number of ends and the tension for all ends can be varied by turning only **one** dial. It consists of two conventional discs with an electromagnetic coil beneath. The lower disc is of non-magnetic brass, while the upper disc is of magnetic iron. When the coil is energized through a central electronic control, the upper disc is attracted downward, pressing the yarn between it and the lower disc in any degree desired. The pressure is pulsating, which prevents backup of twist and helps keep the tension discs clean and free turning.

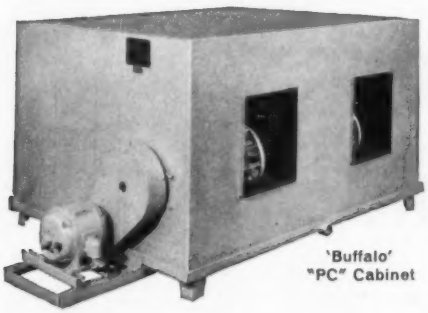
LANCE STATIC ELIMINATOR, made in a variety of models, has a textile application wherever static electricity is a problem. It carries a high voltage discharge from pointed electrodes into the air, causing the fibre to be surrounded by ionized air, which serves to discharge the static electricity accumulated all around the surface of the fibre. Whereas the voltage is high enough to ionize effectively the air, it cannot harm the operator, who accidentally comes in contact with the electrodes.

FOSTER MACHINE COMPANY
ELECTRONIC SALES DIVISION, DEPARTMENT II-II
Westfield, Massachusetts, U.S.A.
Southern Branch, Route 85, Belmont, N. C.

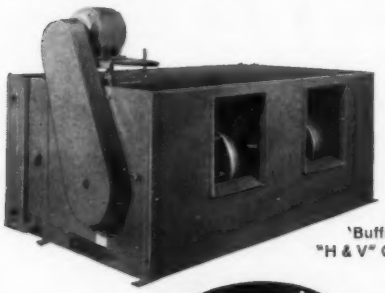
For further information use Handy Return Card, Page 167



'BUFFALO'-CREATED CLIMATES KEEP PEOPLE AND PRODUCTION...HUMMING



'Buffalo'
"PC" Cabinet



'Buffalo'
"H & V" Cabinet

Everything functions better in clean, controlled climates.

People are more efficient.

Machines are more efficient.

And, as you might expect, you get extra years of service from equipment and machinery when dust, temperature, abrasive dirts, and humidity are held in check.

It all adds up to improved quality control and lower production costs. 'Buffalo' air handling equipment will produce these benefits in your plant and offices. 'Buffalo' Heating/Ventilating cabinets are a dependable, year-round source of cooling or heated air. One space-saving unit does the work of two.

Air conditioning problems? 'Buffalo' PC Cabinets cool, heat, humidify, air wash, and filter to requirement. Units illustrated are but two of a complete line of 'Buffalo' air handling equipment. Like *all* Buffalo Forge equipment, each unit is Quality constructed throughout.

"Buffalo"

AIR HANDLING DIVISION

BUFFALO FORGE COMPANY

Buffalo, New York

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

'Buffalo' Air Handling Equipment to move, heat, cool, dehumidify and clean air and other gases.

'Buffalo' Machine Tools to drill, punch, shear, bend, slit, notch and cope for production or plant maintenance.

'Buffalo' Centrifugal Pumps to handle most liquids and slurries under a variety of conditions.

Squier Machinery to process sugar cane, coffee and rice. Special processing machinery for chemicals.

X-Link

PIGMENT BINDER • ANTI-CROCK FINISH

NONWOVEN BINDER

NEW CROSS LINKING VINYL RESIN

X-LINK is news in textiles! It is a cross-linking, self-reactive vinyl resin that makes the addition of thermo-setting resins optional. A longer lasting bond to fabrics and fibers results.

FOR WASH 'N WEAR AND OTHER APPAREL OR INDUSTRIAL FINISHES. X-Link is clear and colorless. Builds a fuller, more lasting hand. Improves resistance to water and dry cleaning solvents.

FOR NONWOVENS. X-Link increases flexibility as well as tear and tensile strengths. Gives a pleasing hand and drape.

FOR PIGMENT PRINTING. X-Link improves resistance to crocking, wash fastness and dry cleanability.

X-LINK promises important quality extras for your fabrics. Why not learn more about it? Write or call your nearest National office.

National RESINS

NATIONAL STARCH and CHEMICAL CORPORATION

750 Third Avenue, New York 17 • 87 Haynes St., N.W., Atlanta • 53 Fargo St., Boston

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Why Gates Lug Straps last longer... insure smoother operation

Super Tex-Hide Lug Straps

Users report up to five times longer service on their heaviest looms from Super Tex-Hide than from any other strap.

New Thin-Tex Lug Straps

When extreme flexibility and much lighter weight are needed, Thin-Tex Lug Straps give up to 25% longer life than ordinary straps... and smooth out loom operation.

Because of the great strength of Tex-Hide—a product of Gates *Specialized* Research—the block can be molded into the strap without the use of bolts or rivets. As a result, straps are streamlined and light in weight.

Yet, because of their superb resilience, they give longer service, and smoother operation, *than any other strap you have ever used.*

2 big advantages of Gates Tex-Hide Lug Straps

1 Tex-Hide Lug Straps combine great strength with unsurpassed resiliency. They soak up blows and shocks *without taking any permanent stretch.*

2 Further, the great resiliency insures long life for *all parts* of the picking motion, and gives extended periods of operation *without any strap adjustments.*

Gates Distributors are in the YELLOW PAGES

The Mark of Specialized Research

The Gates Rubber Company

Denver, Colorado

Gates Rubber of Canada Ltd., Brantford, Ontario

TPA

Gates

Take-up Roll Coverings
Card Bands
Cone and Evener Belts
Spinning Frame Drives

Reversible Pickers

Tex-Hide Harness Straps

Tex-Hide and Vulco Loop Pickers

4-in-one Check Straps Multi-Check Straps

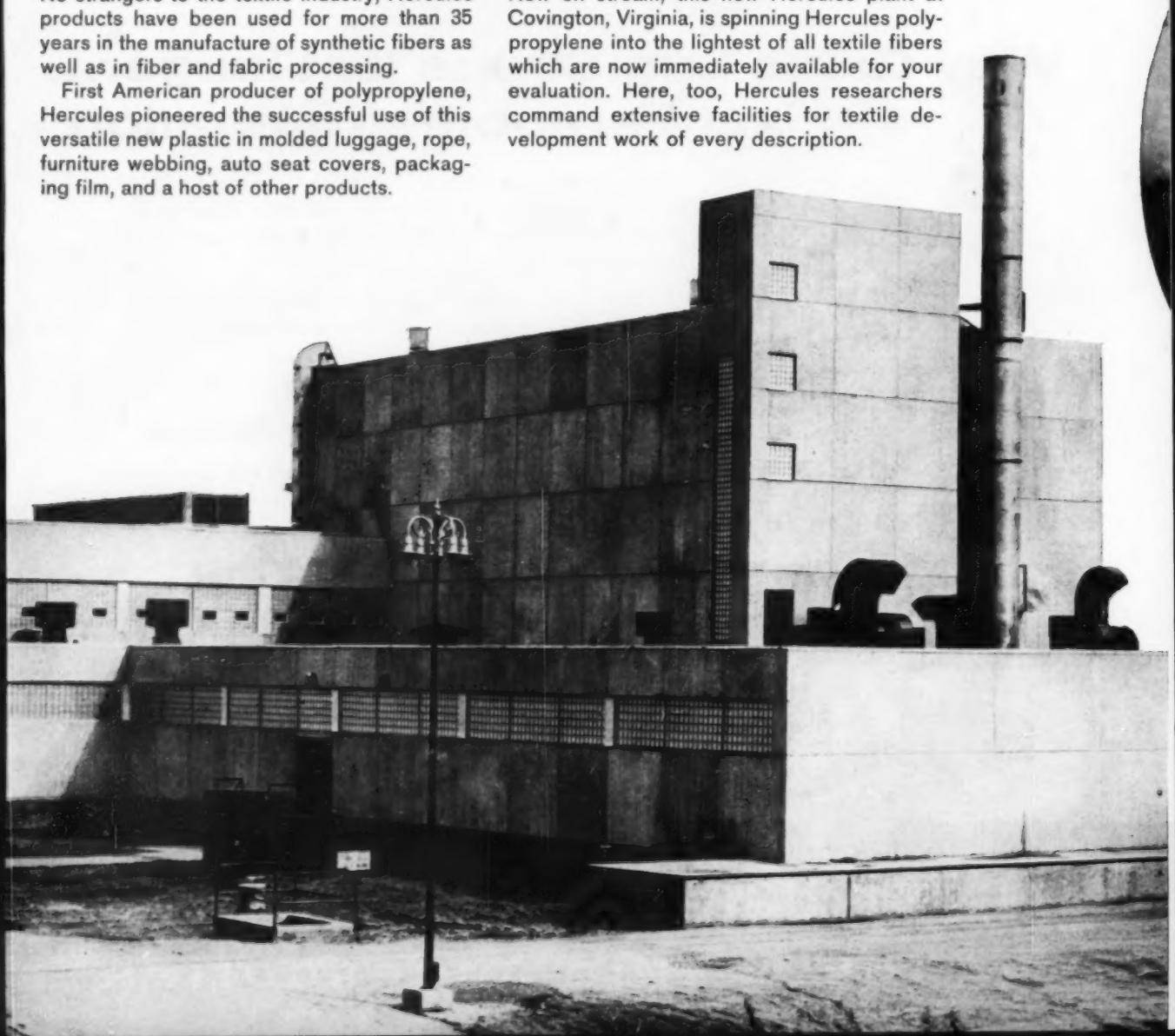
Gates Textile Accessories

WAY OUT FRONT... HERCULES®

No strangers to the textile industry, Hercules products have been used for more than 35 years in the manufacture of synthetic fibers as well as in fiber and fabric processing.

First American producer of polypropylene, Hercules pioneered the successful use of this versatile new plastic in molded luggage, rope, furniture webbing, auto seat covers, packaging film, and a host of other products.

Now on stream, this new Hercules plant at Covington, Virginia, is spinning Hercules polypropylene into the lightest of all textile fibers which are now immediately available for your evaluation. Here, too, Hercules researchers command extensive facilities for textile development work of every description.



POLYPROPYLENE

olefin fiber

Hercules... FIRST commercial producer of polypropylene in the United States, now leads the way in the commercial production of polypropylene fiber

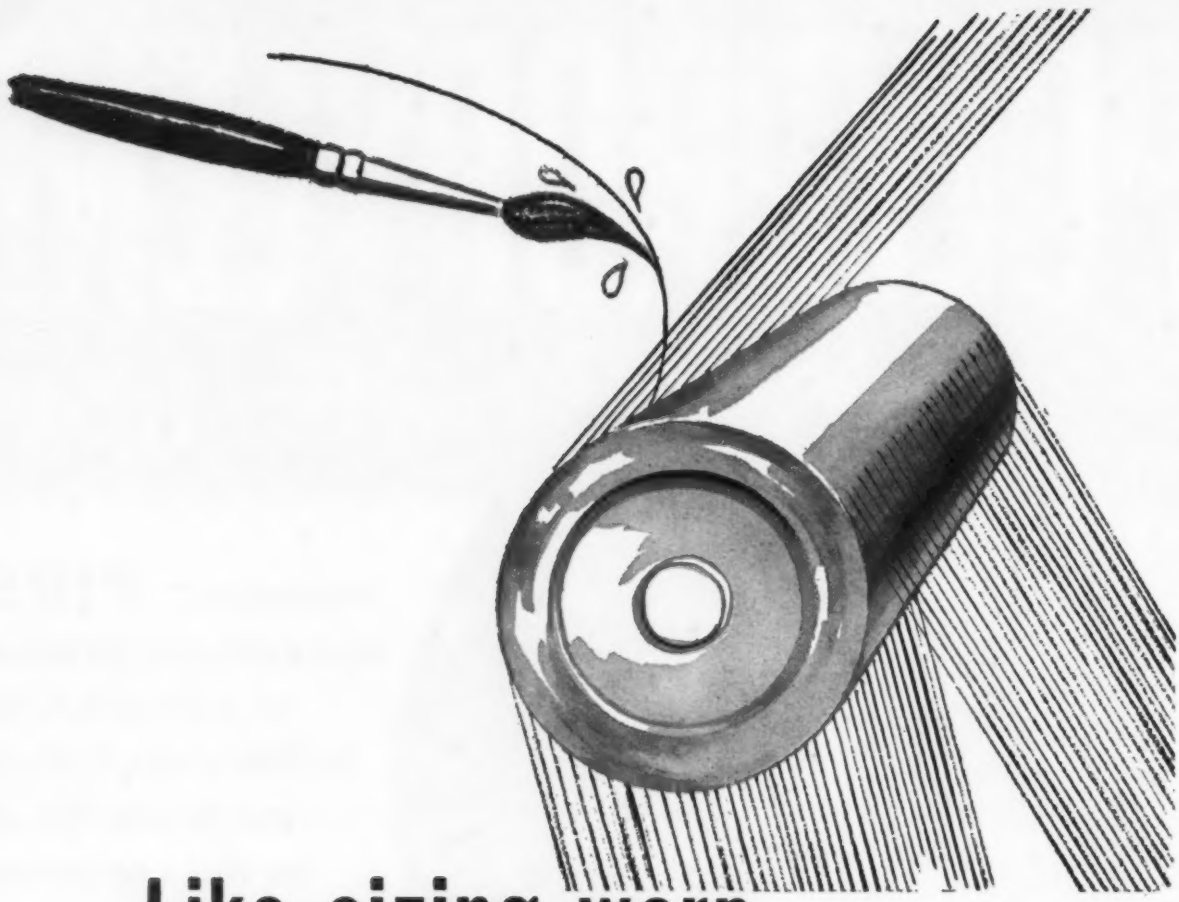
IT'S HERE... first commercial polypropylene fiber, available as continuous multifilament yarn, staple, and tow. It's Hercules polypropylene, the new olefin fiber destined to become the new star in textile constructions... and cost reductions. So light it actually floats, Hercules polypropylene provides greater coverage per pound than any other fiber. It's strong and tough, rates high in resistance to mechanical abuse and chemical attack.

The variety of constructions made with Hercules polypropylene fiber in cooperative studies has already won high acclaim from technicians and designers. We invite you to share in the profitable future of this new fiber—and welcome the opportunity to work with you on product development. To aid you in evaluating markets, ask for detailed physical properties, denier tables, comparative coverage data, and other facts about Hercules polypropylene fiber.

FP61-1

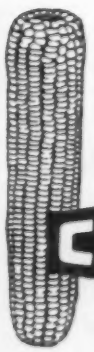
HERCULES POWDER COMPANY

Fiber Development Department • 380 Madison Avenue, New York 17, New York
Branch Office: 1214 Wachovia Bank Building, Charlotte, North Carolina



Like sizing warp "end by end"

Weaving at high efficiency goes back to the depth and uniformity of warp sizing. CLINTON starches reach warp ends *completely*, to give yarn increased strength and a friction-free surface. At the slasher and loom, shedding is minimized. In the finishing operation, CLINTON starches give the proper hand and body to your fabrics. To assure consistent quality from warp sizing to finishing, you can always count on dependable CLINTON starches . . . the standard of comparison in leading textile mills.



CLINTON CORN PROCESSING COMPANY

CLINTON, IOWA

Technical service always available

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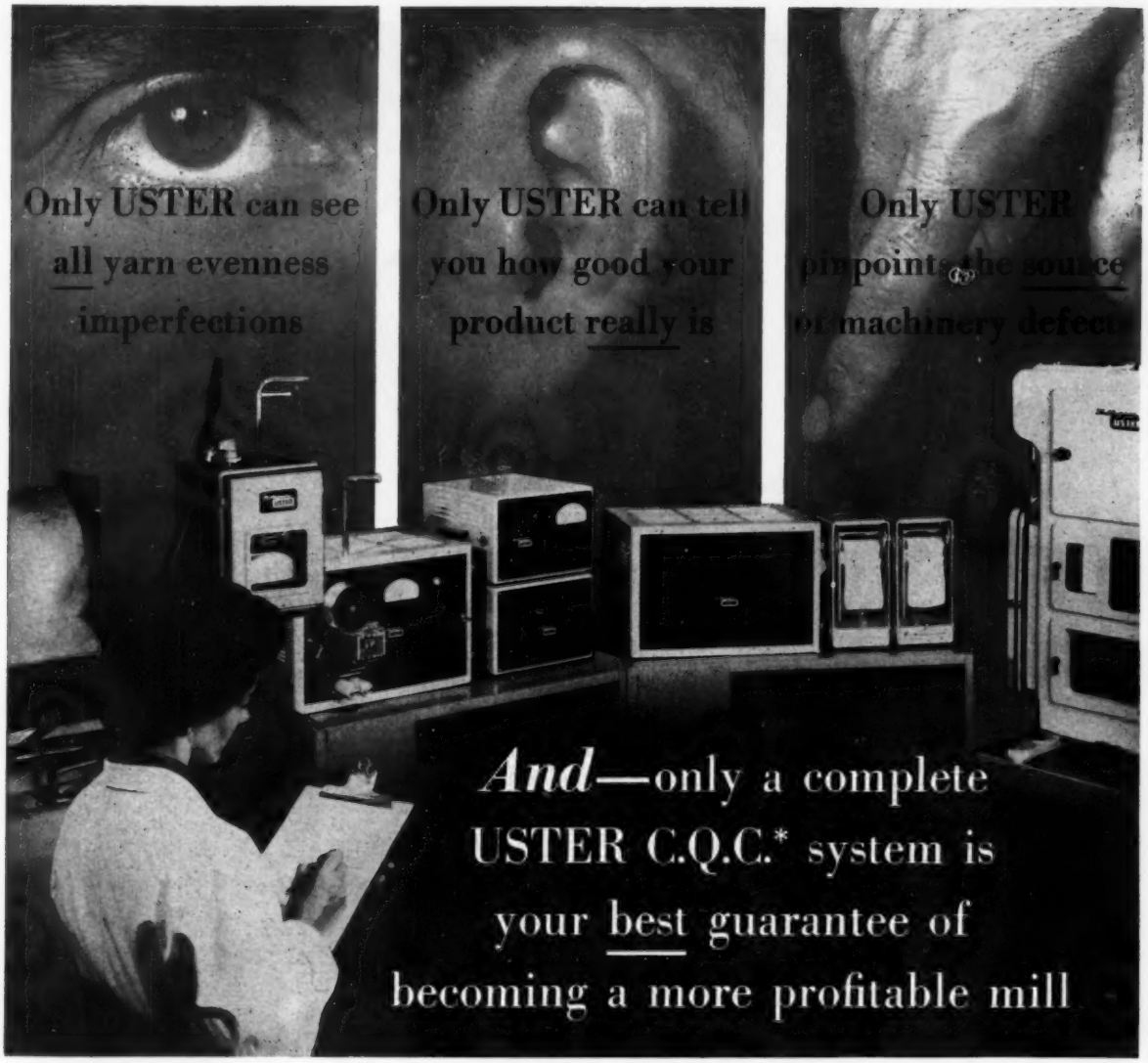

Only USTER can see all yarn evenness imperfections
Only USTER can tell you how good your product really is
Only USTER pinpoints the source of machinery defects
And—only a complete USTER C.Q.C.* system is your best guarantee of becoming a more profitable mill

Profit making mills in these fiercely competitive times owe a large part of their success to the continual upgrading of mill machinery and production methods through sound mill control programs. Experience has shown that a quality-controlled product is not only a more *saleable*, but also a *lower cost* product. This simply means that given identical raw materials and equipment, the manufacturer with quality control in his processing will end up with a product of higher quality, produced at lower costs, than the competitor who neglects controls and permits costs, machinery efficiencies and quality to "work out by themselves".

How about your mill? Are you taking the steps necessary to compete in today's world market and in the present trend toward further automation? No automation is possible without continuous quality control which is absolutely essential for effective machinery management. A fully equipped Uster Evenness Control system is literally the nerve center of automation.

USTER

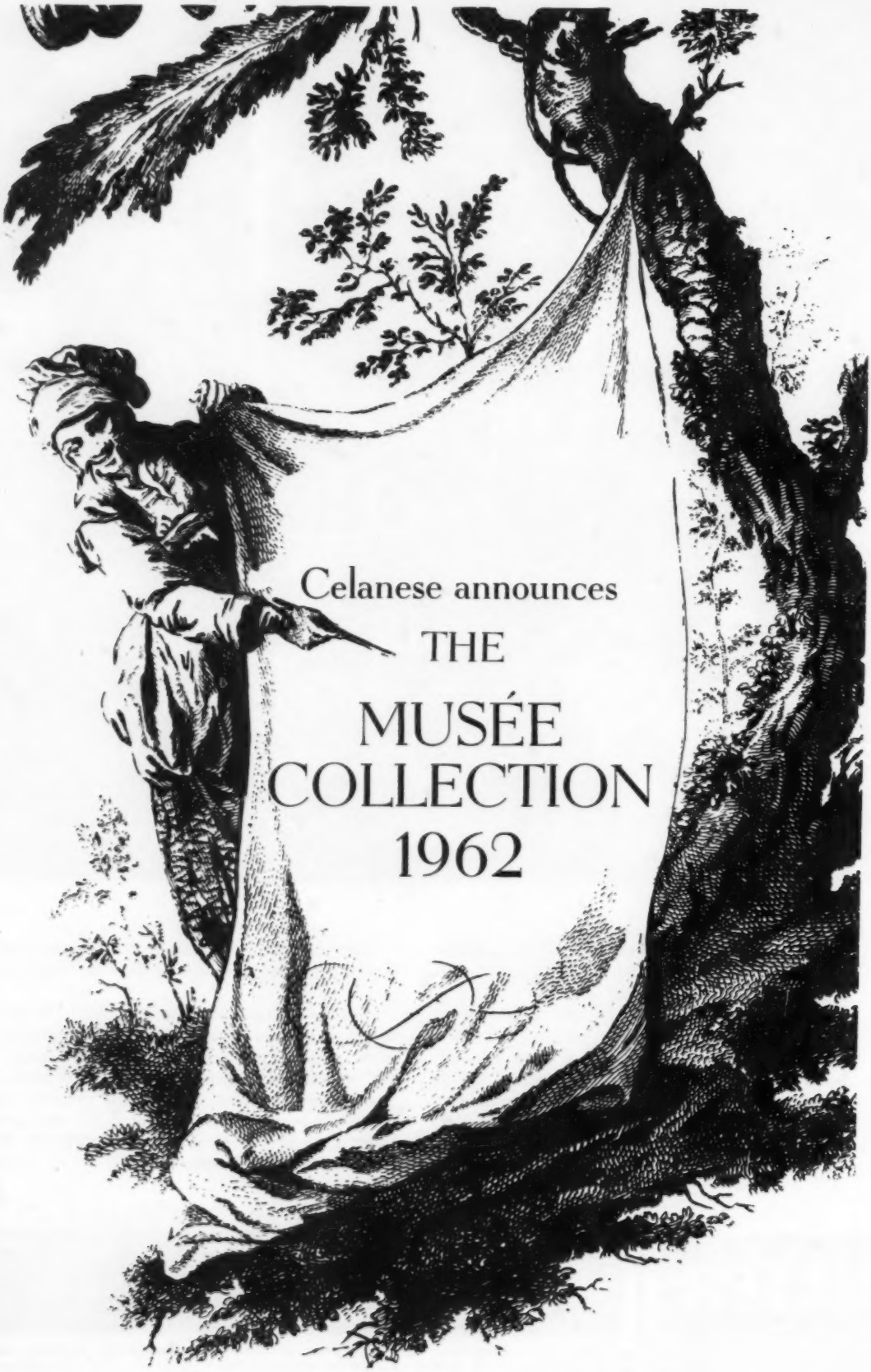
EVENNESS TESTER • INTEGRATOR • SPECTROGRAPH • IMPERFECTION INDICATOR
VARIMETER • STRENGTH TESTER • SPECTOMATIC • WARP PREPARATION EQUIPMENT

USTER CORPORATION, CHARLOTTE 8, NORTH CAROLINA

Canadian Sales Office: Hugh Williams & Company, 77 York Street, Toronto 1, Ontario

*CONTINUOUS QUALITY CONTROL IS ABSOLUTELY ESSENTIAL FOR EFFECTIVE MACHINERY MANAGEMENT. A FULLY EQUIPPED USTER EVENNESS CONTROL SYSTEM IS LITERALLY THE NERVE CENTER OF AUTOMATION.

© Uster Corp. 1961



For further information use Handy Return Card, Page 167

Celanese discovers a fabulous museumful of historic fabric designs to inspire magnificent new decorative fabrics for The Musée Collection . . . Celanese 1962 home furnishings promotion.

From the archives of the Musée De L'Impression Sur Étoffes in Mulhouse, France, come fabrics predating the French revolution. This museum is the only one in the world devoted entirely to textile printing. Its collection has been preserved over the centuries, was hidden away in the French countryside during the war, is reassembled now in the museum and brought to light at last by Celanese.

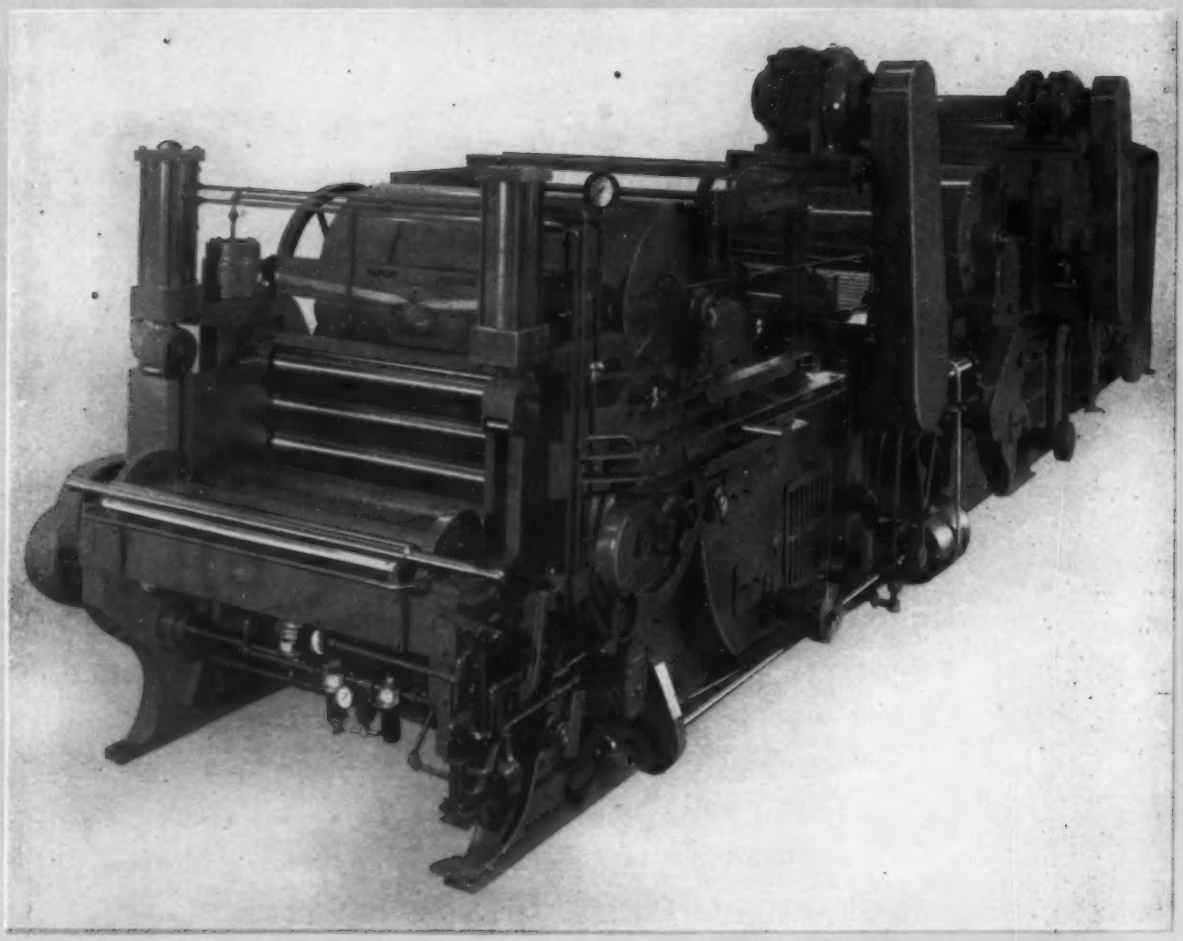
The collection includes carefully authenticated documents, historic commemorative fabrics, rare tapestry designs and thousands more as yet untouched for commercial use. Celanese has been privileged to take exclusive photographs of these treasures and will make them available to converters for translation into fabrics with Celanese Contemporary Fibers. And we will back these fabrics in '62 with every promotional resource at our command. Celanese promotions build fabric demand. Look for even greater demand for fabrics for The Musée Collection—1962 promotion. Be ready for it! Celanese Fibers Company, 522 Fifth Avenue, New York 36

(a division of Celanese Corporation of America)

Celanese®

Celanese contemporary fibers

The ALDRICH *Synchronized Single Process Picker...* with HIGH COMPRESSION CALENDER

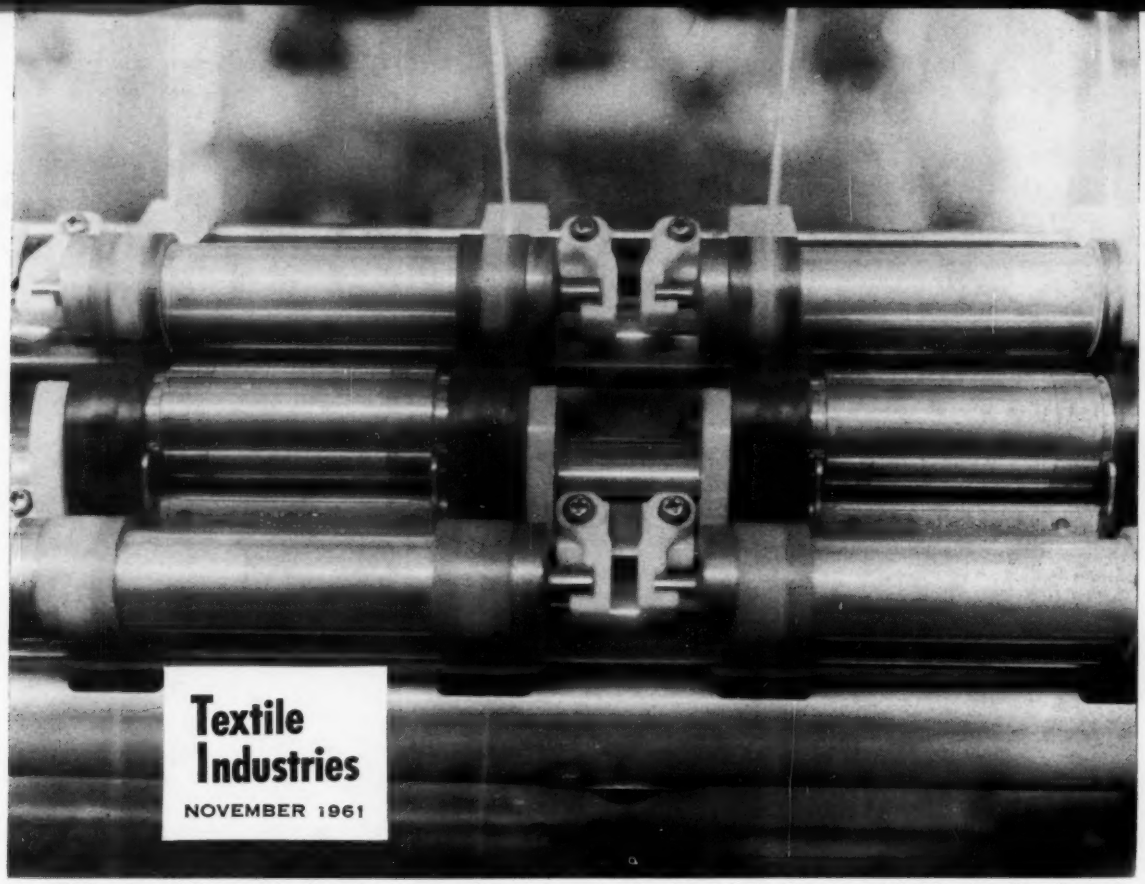


This is a true Single Process Picker, in which the finisher section is fed with a smooth, well-formed lap from the breaker section, instead of with loose stock from a gauge box or hopper feeder.

Aldrich laps are more uniform, inch-by-inch, and will make more uniform card sliver.

AldricH MachinE WorkS

Greenwood, South Carolina



MagneDraft rolls and the system's clean design are producing yarns of uniformity and cleanliness unmatched by Russell's other units.

What magnetic top rolls can do

Russell Manufacturing Company gives them an unqualified okay

Staff prepared Exclusive

THREE PEOPLE at the Russco plant of Russell Manufacturing Co., Alexander City, Ala., spin, creel, and doff 9,216 Gwaltney spindles fed from MagneDraft units. They produce combed 30s, 35s, and 38s filling from 1⅛″ cotton and 50s filling from 1 7/16″ combed Pima.

"We like the frames and the drafting well enough to have 16 more on order for delivery this fall and next spring," says Russell Vice-President Eugene Gwaltney.

The frames are to arrive in two groups of eight to supplement the 32 now running.

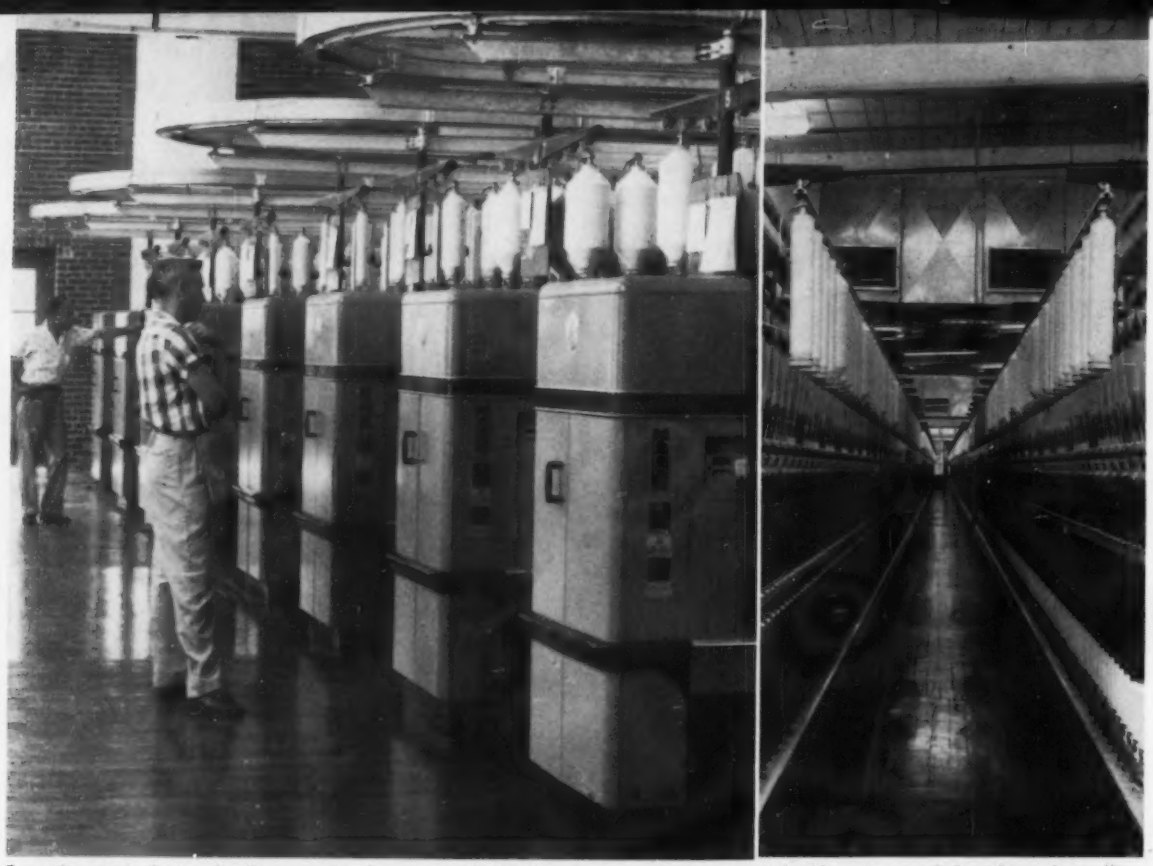
Russell runs the 2¼″ rings (11″ traverse) at 11,500 rpm, a figure somewhat less than what a four-frame test run of 12,300 rpm suggests can be done. At the higher speed, the 1″ rolls turned 165 rpm—but speeds are not the story.

Magnetic Rolls and a System. The MagneDraft rolls prove to Russell they can take any speed or draft duty given any other high-draft system. Some have been running 16 months without showing any signs of wear. So have the aprons.

"We spend $45,000 a year keeping regular drafting running. We replace bad rolls, bad aprons, and bad cots among our 60,000 anti-friction spindles, but we still get roll patterns," says Mr. Gwaltney. "The only ones I have seen from the magnetic rolls are traced to a lint button on the bottom roll or to an apron choke. We have replaced three aprons on the new system in the 16 months we have operated them.

"The performance gives us something to think about—I believe the weighting system makes the difference. The roll load, uniform front to back, isn't duplicated in saddle systems.

"As for magnetism in the new rolls, it does not change. The rolls



From this point of view the three people who operate the 32 frames can watch the entire job. Above is one of the 4-frame-deep alleys.

have as much "weighting" power right now as they had when we installed them. They don't weaken with age and they aren't upset by a change in count.

"It doesn't change when we buff a cot, which we do carefully to give no more run-out than the rolls themselves have (S-L tolerance is one and one-half thousandths—Eds.). We buff damaged ones to a gauge to keep them true cylinders. The thin cots keep their densities so well there are no real differences in cushion or gripping powers.

"Cleaning, especially expensive with apron systems, is easily done with these frames running. We give ours a picking every three months (our older drafting types get it every six days), but they don't really need it then. We have not established the exact cycle."

The very simple design gives lint little to hold to. Slippery nylon cap bars hold the top rolls in an oilless grip. And being polished and *dry* they give aimless bits of lint no invitation to come aboard. If one does pause, a blast from a passing cleaner nozzle jets him on his way.

Vacuum nozzles from the suction cleaning system pick off many such wanderers, while the sweepers trailing from the overhead traveling cleaners snuff up most of the balance. These practically cut out manual sweeping, which is done around walls and under motors once a shift. There are no clearers.

"Our cloth from these frames is much cleaner. Our seconds from slubs, gouts, etc., are down tremendously," says the vice-president.

Ends down average around 20 per thousand spindle hours, count range from bobbin to bobbin (standard deviation is 0.5) and from yard to yard is much narrower, the CV is from 1.3 to 1.4, and the Uster nonuniformity (quadratic CV) is 15 for the 38s. Single-end break for that count is 225 grams.

On each doff the spinners (doffers) set in 24 roving packages. The 288-spindle frames take 12 such creelings before the cycle starts again. Yardage counters on fly frames and spinning keep the spinning package to 1/12 the roving package. Run-out is even; a single frame uses up all the pieces.

The spinners (doffers) piece in the new roving before doffing, so the bad yarn will be pulled off in loading the package into the spooler. Spoolers run at about 1080 rpm to keep tangles down from the filling-build packages.

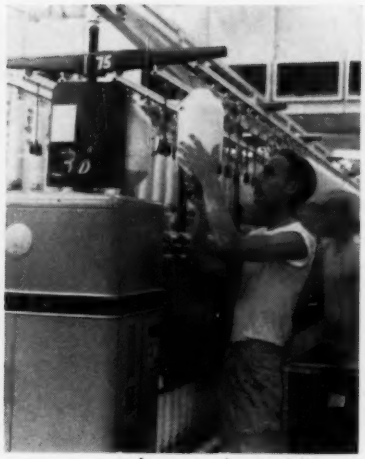
The doffers-spinners can flip the separators back out of the way, thanks to individual ring holders.

No Special Training. Personnel trained on the older systems take naturally to the bigger frames and the magnetic weighting. A few techniques are added.

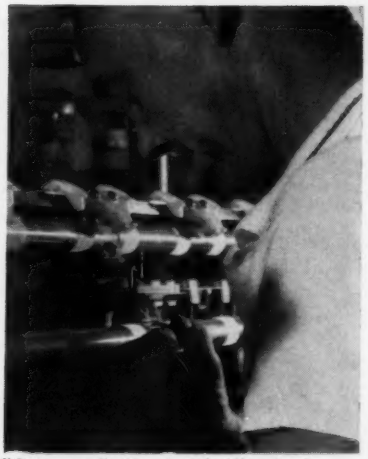
Fixers demagnetize the rolls as they remove them for buffing or for storing, even for a short while. The magnetic fields around a box of charged ones nab too many stray bits of metal.

A few seconds in the demagnetizer destroys their interest in things metallic. And a few seconds in the same instrument, now set in reverse, restores holding power. This last step is necessary, for rolls

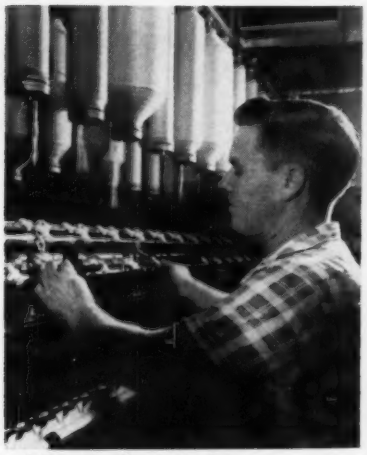
Doff time, so down come 24 empties . . . . .



. . . . . and up go the 24 full ones.



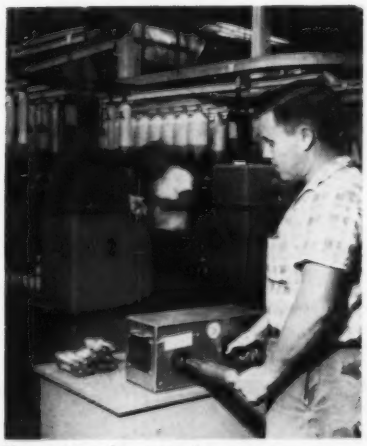
"Going-over" time. Lewel Allen levels . . .



and Dan Powell sets in the aprons . . . . .

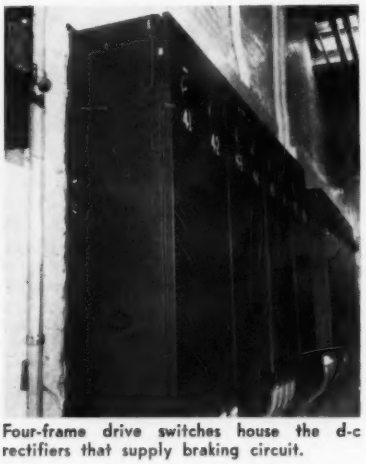
and John Speake hooks up the nozzles . . .

and Al Blankenship checks out gearing . . .



Then comes the magnetism . . . . . .

. . . . . that gives the rolls power to cling.



Four-frame drive switches house the d-c rectifiers that supply braking circuit.

left lying around in clusters, like a bucket of bolts, too long lose up to 10 per cent of their charges.

And, like any bar magnet, the rolls have north and south poles that must be oriented to prevent a silent, endless struggle between two misfits. Two north (or south) poles left near each other keep trying to push each other out of reach. One gudgeon is larger than the other, and the nebs are ar-

New Frame

THE RUSSELL MANUFACTURING CO.

SPINNING
ENDS DOWN TEST

MILL NO.	3	FRAME NO.	76
DATE	3-31-60	YARN NO.	20 Warp
TEST STARTED	6:00	DIA. RING	29/16
TEST ENDED	9:00	MAKE & NO. TRAVELER	#3 G1-0 Flange Eliptic
DURATION	3 hrs	DATE & TIME: OVERHAUL	
TOTAL SPINDLES	240	ROLL BUFF	
TOTAL ENDS DOWN	7	TRAVELER CHANGE	3-30-60
TOTAL ROVING SET-IN	0	SPINNER	Adella Newberry
OPERATIONS PER HOUR	2.3	SECTION HAS	Duke
ENDS DOWN M/Sp./Hr.	9.7	TEST MADE BY	B.
DRAFT GEAR	42	TWIST GEAR	51
DRAFT CONST.	745	TWIST CONST.	894

REMARKS: 190 Front Roll R.P.M
1.25 HK. Rov. DRAFT 16.00
17.53 T.P.I.
3.92 T.M.
10,469 SPINDLE R.P.M.
7,025 TRAV. F.P.M.

SEMI-COMB. SPINNING

Mill No. 3 Date June 11, 1960
Frame No. 74 Year Model 1959
Yarn Size 20's/1 Hank R. 2.00 p.c.
Twist Gear ___ Twist Const. 894
Draft Gear Draft Const. 1517

Spindle No.	Weight ea.	Weight Bund	Coefficient of Variation
133	19.0	141	15.8
134	18.7	134	15.2
135	18.6	146	15.9
136	18.6	147	15.8
137	19.2	155	16.6
138	18.8	158	15.8
139	18.4	152	15.8
140	18.9	149	14.7
141	19.2	154	15.0
142	19.0	166	14.6
	18.74	183.9	15.42
B.F.	2599		

REMARKS: New sample rolls # 7875 Aprons Wt, break & c.v.

Spinning ends down tests and bobbin-to-bobbin evenness speak for themselves.

...ged to accommodate the difference. One has to try hard to put a roll in backward.

Regular steel traveler hooks magnetize eventually, pick up ropes of travelers when dipped into a box of them. Stainless steel ones, indifferent to such charges, are now used. And traveler changers carefully pull off and sack all old travelers (they practically count them) to keep some prankish roll from making a bosom companion of a stray.

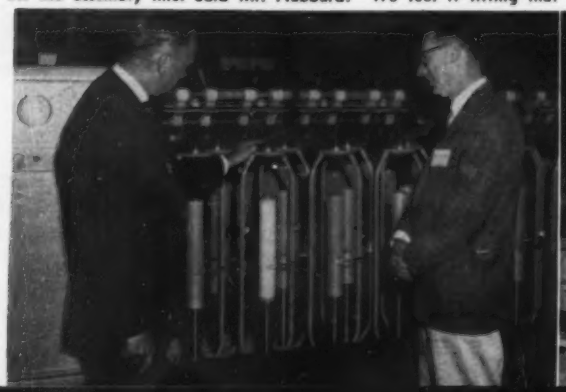
Russell follows Saco-Lowell's advice in discouraging front roll replacement while the frames are running. Front roll speeds are great enough to snatch a roll from a fixer before he can say "scat" (or "D...#!*"&%"). Such a roll out of control can do a lot of damage in a short while. And even if the fixer fits the roll into place, the snap of a cot hitting the revolving flutes can score or flatten an area of it.

Each six months Russell lines, levels the frame and individual rings, plumbs, scours, sets pigtails, puts in a rare apron, and otherwise sets the frame up for another half-year. The rolls are still to be buffed in the old sense of the word—only damaged ones get treatment.

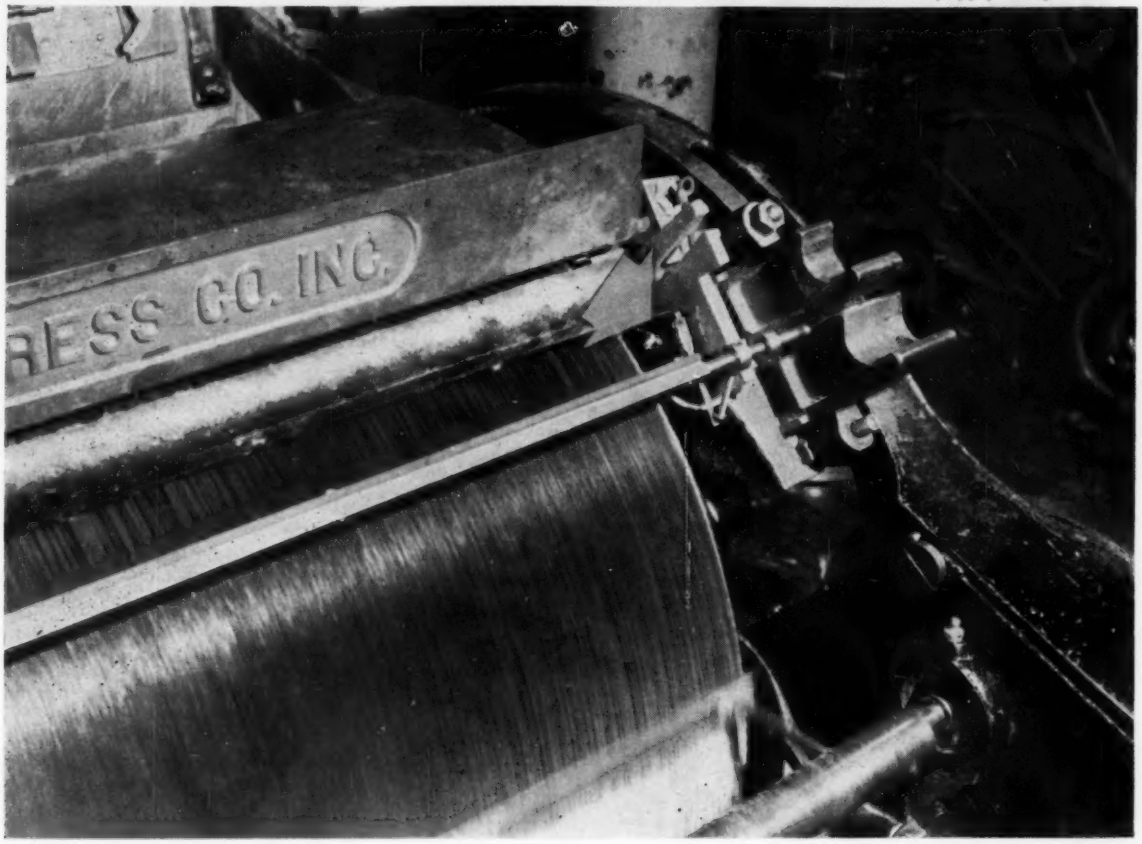
"We are about due for it, though," says Mr. Gwaltney.

Head-end gearing gets very close attention. Fortunately it runs in an atmosphere relatively free of lint, but even so each gear is individually cleaned to keep it free of impactions. Clogged teeth cause run-out patterns, and a single "bad" gear in the cluster can do a whale of a lot of damage to the whole head end.

Modernization continues at Russell Mfg. Co. The firm was the first to receive a production model (96 spindles) of the Saco-Lowell "Rovematic" roving frame, and purchase of 16 more is contemplated. At Saco-Lowell's plant in Easley, S. C., on September 26, Russell vice-president Eugene Gwaltney (right) was shown by the machinery firm's sales manager, J. W. Hubbard, the first Rovematics to come off the assembly line. Said Mr. Hubbard: "We feel it fitting that you, Mr. Gwaltney, be the recipient of the first Rovematic since it was your father who developed the forerunner and companion of this machine, the Gwaltney spinning frame." Later when shown his roving frame already crated for shipment (right photo) Mr. Gwaltney laughingly commented: "This is the first time I recall getting delivery of a textile machine before it was promised."



A microswitch on a skimmer blade stops the card whenever a lap-up, etc., deflects the blade. Clearer roll (top) picks up lint.



Metallic clothing damage kayoed!

A stop motion for cards guards against choke and tramp metal damage

Staff prepared Exclusive

ONE SOUTHERN mill spent about $10,000.00 for repairs on 22 roller top cards every year. These cards are equipped with metallic clothing, and when a card is damaged by a choke or lump of cotton or other hard matter, the clothing is usually ruined on licker-in and cylinder. Such damage required a repair appropriation of $2,500.00 per quarter.

Card Saver* stop motions were installed on the roller top cards equipped with metallic clothing, and there has been no damage requiring repair to clothing since. The stop motions have been in operation for more than a year in this instance with good results, and the $10,000.00 appropriation represents a direct saving.

The stop motion prevents damage to a card caused by chokes, uneven laps, or any foreign object which might be in a lap or by any means entering the card between the feed roll and feed roll plate. For any obstruction that raises the feed roll causes the device to stop the doffer. Any metallic contact between the feed roll and feed plate completes an electrical circuit which stops the doffer and feed roll.

Some of the conditions usually causing damage but which the stop motion prevents damage from are:

(1) Lap tailings being snatched into licker-in

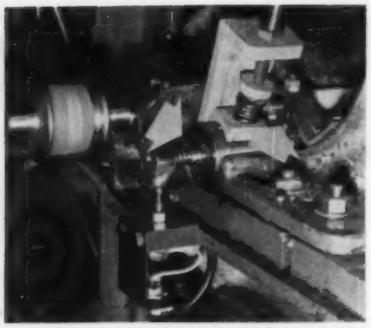
(2) Split laps causing a double layer of stock to be snatched into licker-in

(3) Foreign articles or material in lap going under feed roll and causing streaks and bruises on

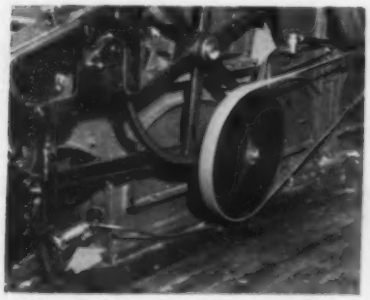
*A patented device invented by John Wesley McLean of Ranlo, N. C., and called the McLean Card Saver. While it is used to best advantage with metallic clothing, it may be used on any type of card. Made by Cocker Machine and Foundry Co., it is sold by Howard Brothers Mfg. Co.

Weight (arrow) gives blade nice balance.

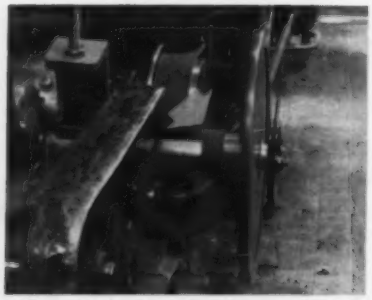
WARNING! Cylinder wire touching metal.



Metal against insulated roll stops card.



Air cylinder, solenoid, knock card off.



One of the insulating fiber bushings.

cylinder, doffer, flats, screens, and plates—includes tacks, brass rivets, travelers, and other metal objects

(4) Fast doffer speeds that at times makes the card web jump over the comb and wrap around the doffer, thus pushing the card plate into the cylinder

Some of the advantages are:

(1) Increased card production (less downtime)

(2) Substantial reduction in supply and repair costs

(3) Improved quality by more uniform carding

(4) Reduction in lost time accidents due to injury by operator getting hand caught between doffer and doffer bonnet

(5) Increase in operators' tasks by reducing card breakdowns

How it Works. Bolted to the lap plate is an upper contact bracket with an adjustable contact screw that can be set to a desired contact gap. If a choke or piece of foreign material attempts to pass under the feed roll, this causes the feed roll to raise and make contact with the upper contact screw. This contact completes an electrical circuit which opens an air valve, allowing air to pass to an air cylinder and actuate a plunger to disengage a lever which strikes the side shaft knockoff handle. This in turn disengages the feed roll drive. Also, the doffer knockoff handle is disengaged simultaneously.

The feed roll drive cannot be engaged until the choke or foreign material has been removed, allowing the feed roll to resume its normal running position. This is due to the electrical circuit remaining closed and holding the air valve open and the disengaging lever up. The side shaft knockoff handle cannot be returned to running position when the disengaging lever is in the up position.

Also, if a piece of metal such as a screw, traveler, card clothing tack, or similar object attempts to pass under the feed roll and makes contact between the feed roll and the feed roll plate, the same electrical circuit will be energized as in the case of a choke.

Proper function of the electrical circuits is permitted by complete removal of metal-to-metal contact between the feed roll and the rest of the card. This is done by replacing the metal feed roll bracket bushings on each end of the feed roll shaft with fiber bushings and by replacing the lap roll carrier gear and the draft change bevel gear with fiber gears. For safety reasons, the mechanism operates on a 6-volt electrical system.

Another mill, operating 26 cards at 20 lb/hr on rayon, had cards damaged about twice a month due to ends down wrapped around the doffer. 10 cards equipped with Card Saver have had no damage.

Apparel wool fabric output down 16% first half

■ WHILE over-all wool fabric yardage produced through June of this year is below the 1960 six-month total, a recent Wool Bureau summary noted that production increased between the first and second quarters of 1961.

In the first six months of 1961 total production of men's woven wool civilian apparel fabrics was 55 million linear yards, down 16% from the 65 million in 1960. While woolens were responsible for the loss, worsteds by holding their own, rose from 48% of total 1960 production to 55% of the 1961 production. Most affected by the shift to worsteds were the less-than-9-oz fabrics and the 9-to-13-oz fabrics.

In the period covered by the Bureau report, total production of wool fabrics for women's and children's wear decreased 5% from 86 million linear yards in 1960 to 81 million in 1961.

A greater decline in the production of worsteds resulted in a further concentration in production of woolen constructions from 92% of total women's and children's yardage in 1960 to 93% in 1961.

2 bogies: IMPORTS AND AUTOMATION

NTA members explored them at annual meeting

Staff report

"WILL OUR government adopt a policy of permitting a steadily rising level of imports of textile goods over the years, or will it fix limits on imports and thereby encourage a strong domestic industry?

"If it is the former, we merely exchange the rapid deterioration of recent years for a slow death in the future. If the latter, we can look forward with confidence."

These words of concern about the industry's future were spoken by W. F. Sullivan, president of NTA at the Association's 107th meeting, held on September 14-15 in Poland Spring, Maine. Forthcoming governmental action on this critical issue, Mr. Sullivan cautioned, remains in doubt even though recognition of the industry's problems by the Administration has been secured.

At the outset of his talk, Mr. Sullivan emphasized that the industry is not overlooking the continued need to modernize, and that it will "take care of those things which lie in the control of management."

"There is no hope," he said, "for those who fail to keep up."

Meanwhile, in the months ahead, the critical issue of the industry's well-being will be tested, he said, in four distinct areas:

Will there be a recognition by the OCDM of the obvious fact that imports exceeding 1.3 billion square yards are weakening the internal economy of the nation? If so, the OCDM will accordingly inform the President, who will then have the broad statutory power needed for dealing with this threat. If, on the other hand, there is opposition to a petition to OCDM from the State Department, or other governmental bodies, Mr. Sullivan observed, such gestures can indicate that the position of the U.S. in international negotiations will be weakened.

"If the State Department chooses to weaken its bargaining position by encouraging the foreign textile industry to oppose an OCDM ruling favorable to the domestic industry, then the State Department holds the expansion of a foreign textile industry as being more important than the preservation of the domestic industry," Mr. Sullivan sternly emphasized.

In the second area, the question posed by Mr. Sullivan was whether the government would act to enforce the one-year Geneva Agreement concluded last July, and with what promptness and to what extent.

The third area which will bear watching is whether a unified, industry-wide approach is going to be pursued by our Government, or whether an attempt is going to be made to split the industry and buy off certain segments.

Lastly, Mr. Sullivan asked if the Government will continue to tolerate a differential in raw cotton prices.

If governmental action in these areas is favorable, Mr. Sullivan said in closing, "we can look forward to better times."

Hong Kong: Dressmaker to the U.S.? In a following address, Seabury Stanton, chairman of NTA and president of Berkshire Hathaway, reviewed events which led to separate negotiations with Japan concerning her quota of exports, and discussed the agreement that was subsequently reached in early September.

Because of her voluntary agreement to limit cotton textile exports to the U.S. during the five-year period ending January 1962, Japan withheld signing the Geneva agreement, concluded in July, until a separate arrangement could be worked out with this country. Accordingly, a negotiating team, of which Mr. Stanton was a member, met with representatives of Japan.

The State Department had previously made an offer to Japan granting an increase of 5% overall in their quota for 1961, together with an increase of 10% in ginghams (from 40 to 44 million yards), and an increase of 33 ⅓% in pants and trousers in 1961. The Japanese also had been advised that it was our intention to reduce exports from Hong Kong to the U.S. by at least 30% below the 1960 level. Consequently, Japan demanded a 30% increase in their own exports to the U.S.

Thus, the negotiating atmosphere in Japan was a most strained one, according to Mr. Stanton. The Japanese believed that they had lost out to Hong Kong because of their voluntary agreement with us over the last five years. Since the Geneva Agreement merely "froze" existing quotas, any substantial relief for the U.S. cotton textile industry, Mr. Stanton said, would have to be obtained through a reduction in imports from Hong Kong.

Little opportunity for negoti-

Elected to honorary membership at the 107th annual meeting of the Northern Textile Association were retired textile executives *Edward J. Russell* (left), formerly of William Skinner and Sons, Holyoke, Mass.; and *William H. Hubbard* (right), formerly of Troy Blanket Mills, Troy, N. H. In center is *Seabury Stanton*, chairman of NTA; on his right is *George A. Dorr, Jr.*, a director of NTA, and on his left is *W. F. Sullivan, NTA president.*

ation thus remained, Mr. Stanton pointed out, because a 5% increase had already been granted the Japanese. As a result, the U.S. negotiating team had to stand firm. The Japanese bargaining point, on the other hand, for an increase in exports was based on the belief that the U.S. was to have held imports to about 250 million yards over-all because any further increase, it was understood, would have been too damaging to the U.S. economy.

But meanwhile, our government permitted imports from sources other than Japan to rise rapidly until they reached four times the level which existed when the Japanese government committed herself to restrain imports.

Despite an "almost impossible" negotiating situation, Mr. Stanton believed that the agreement reached with Japan turned out "reasonably well," particularly when viewed against the failure of our government to limit exports to the U.S. from other countries. The exports from Hong Kong in particular, Mr. Stanton pointed out, have increased to a point almost equal to those from Japan.

In concluding, Mr. Stanton pointed out certain dangers in the Japanese agreement:

1. The very much smaller number of categories than were included in the Geneva agreement, thus providing the opportunity for a concentration of imports in items not listed but included within the category of "All Other" in each group.

2. The increase in permitted concentrations in already sensitive areas, such as ginghams, velveteens, and others.

3. The lack of provision for unilateral action on the part of the U.S. to stop imports of an individual category or item if concentration or market disruption occurred, as was provided in the Geneva agreement.

Although the Japanese agreement provides a controlling provision whenever there is excessive concentration of Japanese exports in any particular cotton textile items, it is by no means as strong, Mr. Stanton said, as it would be if unilateral action by the U.S. were provided. However, since safeguards are being established to administer both the Japanese and Geneva agreements, concentrations of imports should come to light and, moreover, Mr. Stanton said, the good faith of the Japanese government can be relied upon.

C. Henniker-Heaton, Director of the British Spinners' and Doublers' Association, a guest at the meeting, pointed out a weakness of all international agreements concluded thus far. He said that the agreements had not clearly defined the "peril point," as he called it, on imports. There was general agreement with this observation.

Perhaps the greatest optimism concerning the outcome of the industry's problems was shown by a government official, Hickman Price, Jr., Assistant Secretary of Commerce, who gave strong assurances that the Geneva Agreement would be implemented to restrict imports for the period ending September 30, 1962, to the level of the period ending June 30, 1961.

He revealed details of a completely new system of customs administration which would go into effect to provide a means of policing goods coming into the U.S. Statistics on imports would be made available on a monthly basis and means would be provided to prevent imports of textiles entering the U.S. via the "cotton route."

He also implied that a remedy would be forthcoming for the "two-price" cotton system, which has seriously handicapped domestic textile manufacturers.

Should We Fear Automation? Aside from discussions pertaining to the control of imports, the NTA program included two panel discussions centering on the impact of automation, and on the progress that is being made in developing textile machinery.

As introductory speaker of the discussion, "Automation: The Promise and the Problems," James R. Bright, Professor, Graduate School of Business Administration, Harvard University, questioned whether American supremacy in developing new techniques of production and new machines of unique design was now prevailing throughout the world.

Speaking from personal observation of the industrial prowess of other nations, Professor Bright lamented that our position had become a secondary one in research and in originating the basic ideas underlying new technologies.

"We were the leaders in mass production," he said, "... now we are the followers ... and nothing but smarter production can get us back into the race."

Contrary to a popular belief regarding automation's role, Professor Bright pointed out that its chief target is not primarily to reduce labor costs. In personal investigations of many examples of mechanization in various industries, Professor Bright stated that reduction of labor costs was not

a goal in at least four of the cases. The reason for automating processes, he said, might be to reduce capital investment, as in petroleum refining; or to improve quality and reduce waste.

Nevertheless, the impact of automation on the labor populace is of some significance, as another panelist pointed out. James J. Reynolds, Assistant Secretary of Labor, brought out the disturbing fact that mechanization often eliminates major skills and creates areas of unemployment with an abundance of unskilled labor. Though it is true that automation also creates the need for labor possessing what he called "super skills," the problem of retraining elderly workers is challenging and difficult.

Is American Ingenuity Lagging? In the final panel discussion, "Progress in Textile Machinery," moderator J. B. Goldberg, consultant to the textile and allied industries, did not share the alarming view of Professor Bright that originality and ingenuity were essential to a prosperous domestic industry.

"I do not believe that being first is important," he said. "You can still utilize developments and become the foremost." Crease-resistant finishes, polyurethane, stretch yarns, and some of the synthetic fibers, he said, were not developed in our country. Nevertheless, they have been successfully adapted into our production scheme.

On the panel were speakers representing various segments of the machinery industry. J. Woodward Hubbard, Saco-Lowell Shops, discussed progress in developments in preparatory and spinning equipment over the last 5 years, and pointed out the advantages of using American-built machines, which offer larger packaging and reduce costs of materials handling, and offer high speeds that allow production efficiencies in drawing frames at 400 to 500% increase per delivery compared to that built overseas. Mr. Hubbard said that U.S.-built spinning runs at least 10% to 25% higher in delivery speed rate than any built elsewhere.

W. K. Child, executive vice-president, Draper Corp., covered the progress in weaving, citing the increased versatility of the modern loom and the 50% gain in production resulting from a higher PPM rate and a wider loom.

Robert Pennock, vice-president, Leesona Corp. discussed his firm's new automatic cone winder, which would allow use of electronic slub catchers. This development, he said, was of major significance since it would allow for an improvement in quality with only a slight loss in efficiency.

James H. Hunter, president, James Hunter Machine Co. reported on developments in the wet processing field. He pointed out the trend toward high-pressure dyeing of synthetic materials, the increasing use of controlling instrumentation, and the development of dry fulling, among others.

Pointing to examples of mechanization, he called attention to the finishing range of a large worsted plant in the South, in which six distinctly different types of equipment, operating in tandem, are controlled by one man. In this installation there is a television set at the delivery end of the machine which projects what is happening back to the operator at the entering end.

Mr. Hunter also disclosed that his firm's Pressure-Lok machine, which permits continuous processing of fabric in open width under pressure, has reached the commercial application stage. A large southern bleachery will soon install one for bleaching cotton goods.

New Officers. At the meeting, two vice-presidents were elected: *Lawton S. Brayton*, president, Sagamore Mfg. Co., Fall River, Mass.; and *Roger M. Grimwade*, treasurer, Charlton Woolen Co., Charlton City, Mass.

New directors elected to five-year terms include: *Wm. Howard Lehmberg*, president, American Felt Co., Glenville, Conn.; *Edward B. Stevens*, vice-president, Maine Spinning Co., Sanford, Me.; *Carroll F. Holt*, treasurer, Fitchburg Yarn Co., Fitchburg, Mass.; *Ronald A. Mitchell*, president, Cyril Johnson Woolen Co., Stafford Springs, Conn.; and *George A. Dorr, Jr.*, president, Dorr Woolen Co., Guild, N.H.

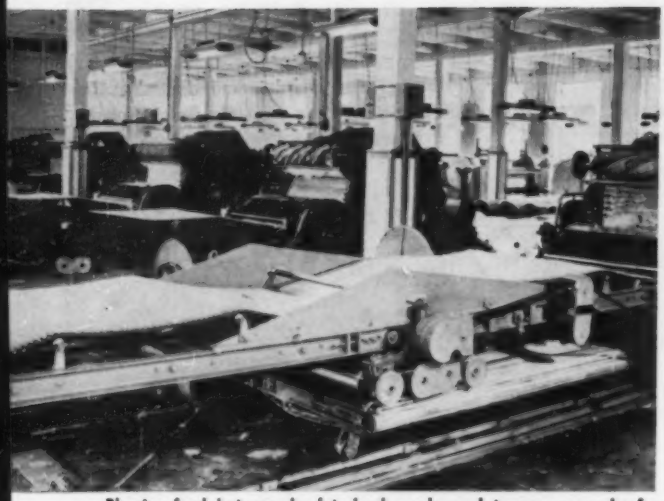
Books for management and operating executives

Handbook of Fibrous Materials is a consolidation of data on fibrous materials research by the U. S. Air Force. The 495-page, paper-bound book supplies information on various phases of basic design data, sewability, friction, abrasion and weather resistance, porosity and air permeability, temperature properties, and chemical resistance of different yarns, cords, webbings, and fabrics. Order PB 171 494 from OTS, U. S. Department of Commerce, Washington 25, D. C. Price, $6.00.

Purchasing policies, instead of procedures, receive major attention in the second edition of *Industrial Purchasing*, by J. H. Westing and I. V. Fine. New information is given on such changing areas as: the materials management concept of organization; coping with the rising cost of transportation; value analysis; quality and quantity control procedures; and anti-trust and administered pricing. Published by John Wiley & Sons, Inc., 440 Park Ave. S., New York 16, N. Y. Price, $9.50.

Any manager responsible for recruiting competent technical, professional or administrative personnel will find useful the book *Management's Talent Search*. It is a compilation of do's and don'ts of recruiting—planning and central staffing, non-campus operations, campus recruitment, inplant operations, communications, and progress reporting. Publisher: American Management Association, 1515 Broadway, New York 36, N. Y. 160 pages, cloth bound, $4.50.

Among new topics discussed in the third edition of *Compressed Air and Gas Handbook*, which is a primary source of information on that subject, are: materials handling systems, air circuitry and controls, air gauging, specialty tools, automation components, and process gas compressors. Factors to be weighed in selecting the centralized or unit-type compressed air system, or in correcting an inadequate system, are stated. Articles on air economy, maintenance schedules, lubrication, and starting up new compressors are also included. Published by: Compressed Air and Gas Institute, 55 Public Square, Cleveland 13, Ohio. Price, $8.00.



Blamire feed between back-to-back cards used to prepare webs for the Arachne "stitch-knitted" process at the plant of the Kolora National Corp., Benesov, Czechoslovakia.

Over-all view of the Arachne machines in the Kolora plant. The first 4 machines were installed in 1958; this was increased to 15 in 1960. Each is said to equal 11 automatic looms in production.

from behind the

by P. Abbenheim
Exclusive

WILL nonwoven fabrics take increasingly larger bites from markets that used to be the exclusive domain of traditional woven and knitted fabrics? The Eastern European viewpoint is that they will.

Or will nonwovens continue to serve only specific uses in certain restricted areas? That is—or was—the Western viewpoint.

A symposium on nonwovens organized by the Czechoslovak Scientific and Technical Society in Prague recently brought into bold relief these two differences in attitudes.

In East Europe the Czechs, East Germans, Russians, and Hungarians, in particular, take their nonwovens very seriously and see them as potential replacements for traditional types of textiles. The Western attitude has, in the past, tended not to be so serious and the view was that nonwoven textiles, while serving certain specific purposes, were still a very long way from becoming replacements for conventionally woven or knitted fabrics.

It seems that as a result of this conference both views will be modified, although the Western viewpoint is probably the one that will ultimately be most radically changed after seeing the achievements of the Czechs in particular, but also the cumulative work of East European research. The symposium was not extremely big, but it was truly comprehensive and delegates came from the U.S.A., Britain, France, West Germany, Switzerland, Japan, Sweden, Hungary, Bulgaria, East Germany, Russia, and, of course, Czechoslovakia.

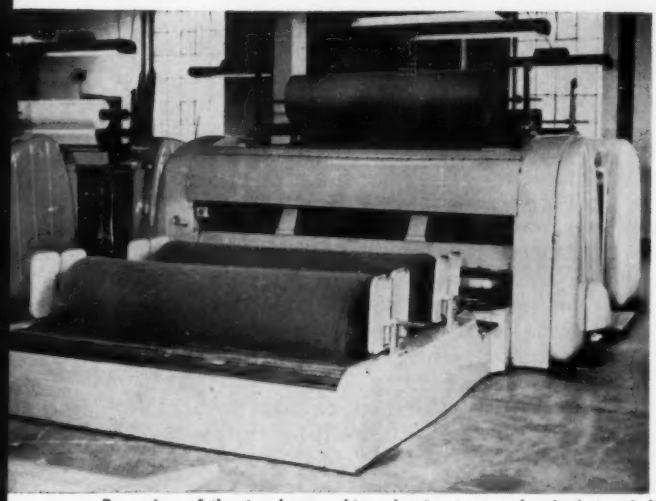
It was particularly fitting that a symposium on this theme should be held in Prague, for Czechoslovakia has been the home of two completely new methods of making nonwovens, both of which have much to commend them.

Needle Felting. The only paper given by an American was that by Edgar C. Rust of James Hunter Machine Co., who spoke on "Modern American Needle Felting Machines," and his was the only paper that discussed this system of nonwoven fabric manufacture.

In a very terse but comprehensive paper, Mr. Rust described the basic principles of needling. He explained that with the modern American machine the problems of excessive vibration were completely overcome by dynamic balancing of the needling section. The character of the old machines limited the rate of needling to a maximum of some 250 strokes per minute and it was essential to have rigid foundations for the machines.

With the new Hunter Fiber Locker a unique system of crank drive allows for complete counterbalancing. This uses two parallel counter-rotating crankshafts with opposed, counterweighted flywheels. That many of these machines are at present operating on the upper floors of wooden buildings is conclusive proof of their elimination of vibration. They can also operate at speeds up to 900 strokes per minute.

Mr. Rust said, "In a relatively short period of time, we have seen an organized research and development program transform the



Rear view of the Arachne machine, showing two card webs being fed into it from a lattice. Beyond the machine can be seen a second one facing it. Fabrics produced weigh from 3 to 20½ oz/sq yd.

Girl operative repairs a broken end on an Arachne machine at the Benesov plant. Note cloth take-up above machine. Needles used resemble those of the F.N.F. high-speed warp knitting machine.

nonwoven curtain

basically sound principles of a grubby old process into a method which demonstrates unusual capabilities in the production of refined fabrics at low cost. It is only reasonable to assume, and we do assume, that the continuation of these efforts is destined to bring about further outstanding contributions to the art."

Properties of Nonwovens. J. W. S. Hearle of the Department of Textile Industries, Manchester (England) College of Science and Technology, presented a paper on the "Physical Properties of Nonwoven Fabrics," for which he was presented with the medal of Prague University, as it was considered to be the outstanding paper of the symposium.

At the College a series of tests has been evolved for measuring the physical properties of these new materials, and it may be said that this work is the first published in which a serious attempt has been made to lay down a method of comparing them with each other. It is all too frequently overlooked that compared with conventional textiles, nonwovens bonded with some form of binder have quite different properties, and to understand them fully they have to be considered as materials in their own rights and not as imitations of something else.

Dr. Hearle brought this point out extremely well. He said, "Like so many innovations in textile technology, nonwoven fabrics have developed empirically. Following the invention of a successful method of producing and bonding fiber webs, the manufacturers of nonwoven fabrics have tried a variety of fibers, binders, and processing details, selecting for sale those fabrics with properties which seemed suitable for particular end-uses.

"Even in the short history of nonwoven fabrics, experience of the art and craft of their production has become of considerable importance, and knowledge of this art is closely guarded by the producing companies. By contrast, there has been little truly scientific study of the processes or the products. Machines are still run empirically and fabrics are designed empirically by those 'skilled in the art.'

"While this form of development may have been inevitable, perhaps even desirable, the further development of nonwoven fabrics will require more scientific study of both the operation and behavior of the products. The next steps will involve the study of fabrics specially produced in order to vary fiber content, binder, and construction in prescribed ways, and also the design of special experiments to elucidate the mechanisms of deformation and failure in the fabric. In this way, we shall help to place nonwoven fabrics on a firm basis of physical engineering design."

This paper was extremely well received by everyone at the symposium and in discussion with delegates it became pretty evident that the work done at the Manchester College has gone further than elsewhere, certainly as far as it is freely available and not cloaked under the "shroud of secrecy" that is still bedevilling the industry throughout the Western countries. It is the personal view of this correspondent that work of this nature will do much to eliminate the mystery of nonwovens manufac-

ture, for manufacturers who disagree with the findings of an independent group such as this will be forced into the open if they are to establish their claims to the contrary. If they do not, they may very well find themselves confronted with standards which they had no part in establishing and which may well be discomforting . . . . to say the least.

Paper-System Nonwovens. A paper, also given by a British delegate, was that by P. Lennox-Kerr, who discussed the manufacture of nonwovens by papermaking techniques. It was the only paper on this theme and it certainly engendered great interest among the East European delegates, who explained that the potentialities of making textiles by such a short-cut was specially attractive to them as they had vast resources in their paper trades and could easily swing over to making materials of this kind if it was proved possible to compete with existing material.

Mr. Lennox-Kerr mentioned RD-101 and the fibrids produced in the U.S.A., and noted that work is advancing in Britain on the development of materials by this route.

Sewing Techniques. There can be no doubt that the papers by the Czechs and the East Germans on their "stitch-knitted" processes created the most interest among Western delegates. The Czechs call their process the Arachne system. In actual fact the processes are basically sewing and use a chain, or modified chain-stitch sewing process*.

The main difference between the Czech and the East German processes appears to be in the needles used. The East Germans use a needle with a groove running down it and the loop is closed by means of a slide wire. The Czech process, which is evidently the superior and certainly the most developed technique, uses a needle resembling that on the F.N.F. high-speed warp knitting machine developed in Britain before the war. This consists of a couple of hypodermic needle tubes, one inside the other. The loop of the needle is closed by the inner tube advancing to meet the hook on the outer tube.

Unlike the F.N.F. needle, the one used on the Arachne machine is pointed so that it can penetrate not only the fiber web it normally handles, but also lightweight materials with which the webs might be combined. Also the needle is of a self-cleaning type so that it does not become clogged with fibrous dust as a result of punching through the fiber webs.

Briefly, the process consists of taking a web of fiber and feeding this through a sewing head which uses, say, a low-grade filament rayon or nylon yarn to stitch down the fabric and so consolidate it. By sewing in a zig-zag and transferring the stitch from one row to another it is possible to lock the stitches which in an ordinary chain would otherwise unravel should an end break.

The Czechs have developed several versions of their Arachne machine. The type Pl is about 11 ft long, 10 ft wide, and stands about 4½ ft high. It will run at 270, 380, or 504 stitches per minute, depending upon the material being processed. The machine gauge is represented in the same measure as Raschel machines. On 18 gauge there are 690 needles across the sewing area, while on 21 gauge there are 805 and on 24 gauge, 920.

With two guide bars the machine can sew either chain stitch, tricot, plain cord, diamond, or weft with any number from 20 to 100 wales per 10 cm. This machine will produce fabrics from about 3 to 20½ oz/sq yd, and it is stated by the Czechs that they can expect an operating efficiency of between 60% and 85%, which gives a production for each 8-hour shift of 164 to 491 running yards of full-width material.

Delegates were taken to see the Arachne pilot plant at Benesov in Northern Czechoslovakia. This plant has an installation of 15 machines and it was established in 1958. It is interesting to note that it is just up the road from the mill where the now-famous Czech hydraulic looms have been installed.

In the Benesov mill an initial 4 Arachne machines were installed in 1958 and these were brought up to 15 in 1960, and at the same time the patterning possibilities were expanded. This mill is now geared to make packaging cloth similar in character to a light flannel, a heavy sewn fabric for use in the manufacture of leatherette, linings and interlining materials for use in the garment and shoemaking trades, and decorative textiles of medium to heavy weight.

Variations on these themes have been examined by various finishing techniques which include flameproof, anti-crease, and non-pilling effects. It is said that the cloths have all taken well to the treatments, which have been most effective.

In terms of production the Arachne machine is stated to be equivalent to 11 automatic looms. Obviously the amount of yarn used in combining the fiber web will depend upon count, density of stitching, etc., but it usually comes to 15 to 28% of the total fabric weight. Normally, filament viscose or polyamide yarn is used for this.

The webs used in the process are made in the same room, on short-system opening and carding machines, the cards being fitted with Blamire-type cross lappers. The interesting thing about the process is that the raw material used in the plant can be of inferior quality, such as shoddy or mungo.

In an introductory talk to the delegates visiting the factory, the mill's deputy managing director, Jaroslav Duchae, gave some interesting comparative figures for fabrics of an orthodox type produced on automatic looms and those made by the Arachne system.

The automatic loom made 12,750 running yd per year, compared with the 39,250 yd of the Arachne —an increase of 308%. In terms of production per unit area, he said that the value of production of the automatic loom per 1 sq meter (1.2 sq yd) was 1,930 crowns annually, while that of the Arachne was 8,950 crowns, an increase of 465%.

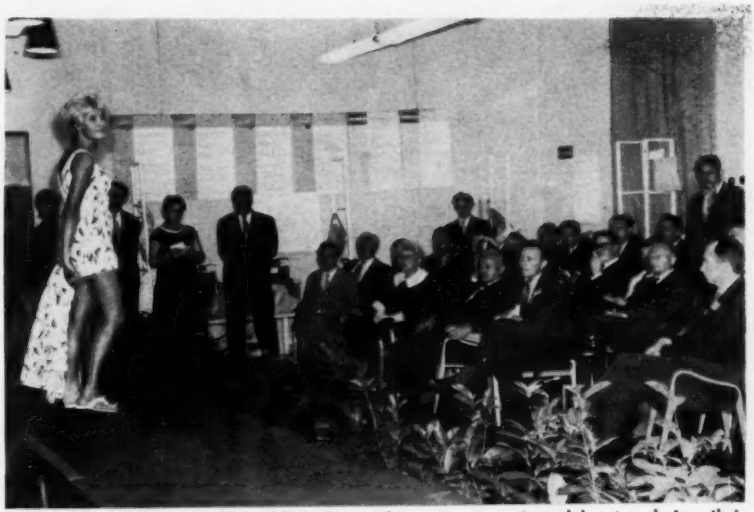
It had been discovered that for

*See "Weaving With a Sewing Machine," TEXTILE INDUSTRIES for July 1959, pages 101-102, 121.

certain applications, the Arachne sewn fabrics had superior properties to those of a conventionally woven cloth. For example, a combination of Arachne fabric with rubber for the manufacture of rubber footwear was better than using the cotton duck with rubber that had been used in the past.

The Czechs have moved very rapidly in the manufacture of outerwear fabrics on the Arachne machines and a special fashion show was arranged for delegates. This was held in the design institute in Prague and it showed that Arachne fabrics could be used both plain and printed in such diverse garments as men's jackets and little girls' coats. Mainly the emphasis was on outerwear.

It should be remembered that these are still early days for the process and, by Western standards, the cloths, although draping well and having a good, firm texture are far from being sufficiently sophisticated for Western tastes. It was noted, however, that they could undoubtedly be modified and improved with time and the process itself is still fundamentally very interesting and potentially very important. The Czechs are anxious to expand its adoption and accordingly they are considering licensing machine builders outside the Eastern bloc to build the Arachine machine.



Printed beachwear in Arachne fabric being shown to symposium delegates during their visit to the Fashion and Design Center in Prague.

Arachne "stitch-knitted" nonwoven fabrics: in an afternoon dress (left), and in a girl's overcoat (right). Fabric at left is a print.

Dip Nonwovens. In conclusion, mention must be made of the incredibly simple Uvutan process of making a nonwoven fabric. This is so simple as to be almost stupid.

Through a bath of pvc passes a continuous conveyor consisting of endless steel wires arranged parallel to each other and perhaps ¼ to ½ inch apart. As this conveyor emerges from the bath, a number of ends of filament rayon fed from a creel are dropped by rollers onto the conveyor. They drop through the pvc quite freely, coiling in different directions and scattering freely across the surface of the conveyor. Obviously they cross each other at different intervals. As they emerge as a sheet they are held together by the pvc, which is quite a thin solution.

The conveyor rises out of the bath, passes over a drip tray, and then goes directly into a drying and curing machine. By the time the material has reached the end of the dryer it is consolidated sufficiently to be handled. It is then taken back for two more passes, finally emerging to be delivered at the far end from the Uvutan formation section.

The result is quite astonishing. The material produced by this very simple system is of a web-like character and it makes an excellent decorative or curtain fabric.

Feed end of Uvutan machine at mill in Letovice, Czechoslovakia. Note creel feed of filament rayon. Uvutan fabric is draped across front of machine.

It is unbelievably cheap to manufacture, and the Czechs are using it for all manner of applications. As a room divider or curtaining it is ideal. It should be remembered that at the present time there is excess pvc production capacity in Czechoslovakia, so any method of manufacture that can use this plastic material is viewed with favor. But despite this the Uvutan process is very far from being merely a means of using up excess pvc.

The fabric is still rather stiff and it is hoped that eventually a suitable plasticizer will be found that will enable fabrics to be made by this process that will have improved draping properties.

The Uvutan process appears to be quite a separate development from the Arachne and it is concentrated in a mill well away from Benesov, at Letovice. The factory is one of the oldest lace factories in Central Europe and there is still a large amount of bobbinet lace made there on pre-World War 1 machines which, as in English mills, still operate with phenomenal efficiency. The factory is very old, but a completely new shed for the manufacture of Uvutan has been erected. It is airy and well designed, with plenty of space for expansion.

It is little wonder in view of these and many other technically significant textile developments. that the Czechs have decided to expand their textile activities at Liberec University where they are now planning to establish a department specially to investigate the manufacture of textile materials by unconventional methods.

In coming years we may be certain that we shall be hearing of other "revolutionary" textile processes evolved in Czechoslovakia.

Buying inflation

(from page 31)

industries, just as it has subsidized farming. 35 years ago, following the farm collapse after the First World War, there was a great deal of pressure in Congress to subsidize the farmers, but the temper of the time was against this and the McNary-Haugen Bill was turned down. Worse bills were of course later accepted.

Many conservative people firmly believed that a policy of subsidizing the farmers would be the first step toward national bankruptcy and utter ruin, since, if farmers could be subsidized, anybody could be subsidized. Very likely these conservatives were right. It just takes time to ruin a country as big and rich as the United States.

However, we are now subsidizing shipping as well as farming, and are right on the brink of subsidizing the railroads. We have subsidized certain mining operations for many years. If the textile industry has to be subsidized, that would seem to break down the last barrier between us and Communism, because if the government has to take over the railroads and the textile industry, there would be no valid argument against its taking over anything that got in financial trouble.

THE RAILROADS are in such bad shape that some of them are either going to have to go out of business or be subsidized, unless the government is willing to change some policies of long standing which have contributed to these railroad problems. Some of the changes necessary would be met with adamantine opposition by the most powerful lobbies in the country, and if the choice is between offending powerful organizations and subsidizing railroads, the easy way out will be the subsidies.

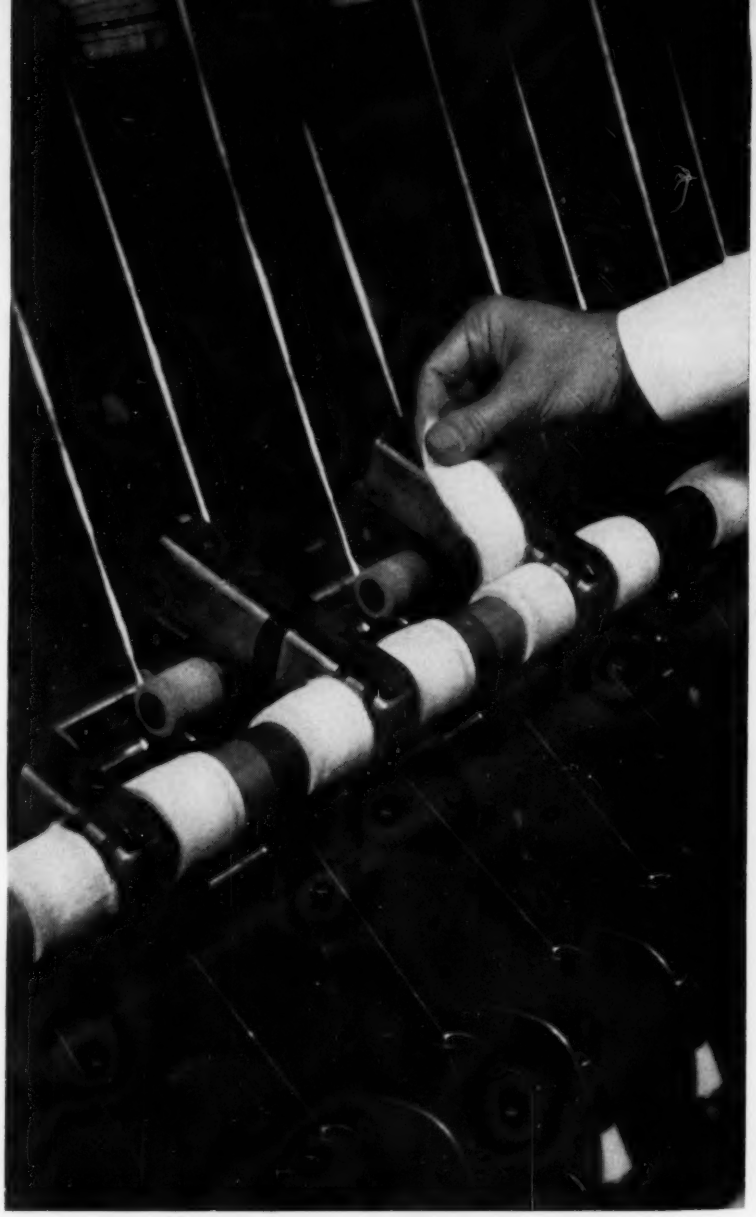
Enough subsidies scattered throughout enough areas of the nation's economy will force us, whether we like it or not, into a totalitarian form of government. When the government owns and controls practically everything, it must find means of operating those things, and all of our carefully established and long cherished liberties will go by the board. There is no use to say, "It can't happen here." It *has* been happening here for years and continues to happen.

It has been encouraging to hear that the younger generation is becoming conservative. They certainly ought to—it is their money we are squandering so blithely. When the time comes that some settlement must be made for all of these airily incurred debts, the current generation, finding that there is no possible way of paying the bills, may ask one of Khrushchev's successors for a little advice on how to handle a situation of that sort.

Cotton mill finds them

always hungry for waste

Expanded synthetic rubber clearer covers have great waste holding power, long life



Exclusive

A NEW TYPE revolving clearer cover designed to greatly lengthen picking schedules and to help maintain a high quality product is being installed at Startex Mills, Startex, S. C.

Startex, which produces quality 80-square cotton fabric, is constantly seeking new techniques to guard quality and reduce labor costs. The new clearer cover, called Accotex NK-770, is designed to help both.

Manufactured by Armstrong Cork Company, the cover is an expanded synthetic rubber material much more durable than sponge rubbers tried in the past. Startex has installed the new clearer covers on about one-sixth its spinning frames, and performance has proved so satisfactory that the well-known southern mill is planning to install the covers on the rest of its spinning frames as soon as possible.

A. M. Federline, overseer of spinning, said that although the new clearer covers had been installed only a short time, it is evident they can be picked about twice as fast as the clearer covers being replaced.

It collects waste fibers uniformly, thus preventing uneven bunching that tends to cause end breakage and top roll laps. As a result the covers do not have to be cleaned so often. When it becomes necessary to service them, they are easily hand cleaned because the waste usually comes off in one piece.

Looking down the long rows of spinning frames, it is easy to visualize the scope of the job of picking the waste fibers from the clearer covers.

They do not have to be removed for picking; the picker tears the waste along the edge, gives it a quick picking motion, and it usually comes off in one, even piece. With the old clearer covers, the waste came off in pieces, leaving knots of fibers behind that caused uneven build up.

Seamless, the new ones are made of very durable material that retains its resiliency for long periods, increases service life.

CO-OPS CAN HELP YOU GROW

Figure 1

Figure 2

Figure 3

by William I. Henry
Co-operative student
*Southern Technical Institute**

Exclusive

Consistently high grades among co-operative students suggest their's is a forceful system of learning. And what they know can be turned back to the industry. There are ways to best use their time

ASK ANY co-op student if he would again take the co-op route through college if he could pay his way, and his answer will likely be an emphatic "Yes." To him the route is a refreshing avenue to a career.

There are several reasons for this attitude.

To begin with, the average co-op feels the extra year his program takes puts him a year or more out in front of the four-year student. Having served an internship of sorts, he feels ready to go to work. A training program usu-

*A unit of the Extension Division of Georgia Institute of Technology and located at Marietta, Ga. It offers two-year terminal courses leading to the degree of Associate in Science of Textile Technology. The references made to five-year and four-year terms belong to the parent Institute, as the co-op course the author is taking lasts only three years.

Figure 4

Figure 5

ally awaits the four-year man.

The extra year also gives the co-op a chance to break up his class work with equal periods in production, a factor not easily offset, because it gives the co-op time to digest his book work. This laboratory time occurs in stages, permits a thorough mixing of theory and practice at critical stages. The co-op group's higher grades most often attest to the effectiveness of this learning system.

The alternating 12-week class and industry cycles do not keep the student out of class long enough to break into study habits. They actually give him a sort of vacation from which he returns mentally ready to tackle more theory. He is not away from the campus long enough to feel out of tune with college activities. This time in industry has been likened to a "vacation with pay."

A program of such value to the student, must be of equal value to the industry that offers the training. And from a co-op's point of view, there are critical areas in which industry can make best use of the co-op's time.

To begin with, industry could well establish student loan funds through which the co-op can get financial aid now and then. While the co-op, living at home during his time in industry, can usually save enough to pay his next tuition, sometimes emergencies arise that stop even the most determined student. Often the difference between returning to school on schedule and remaining at work is literally a few dollars.

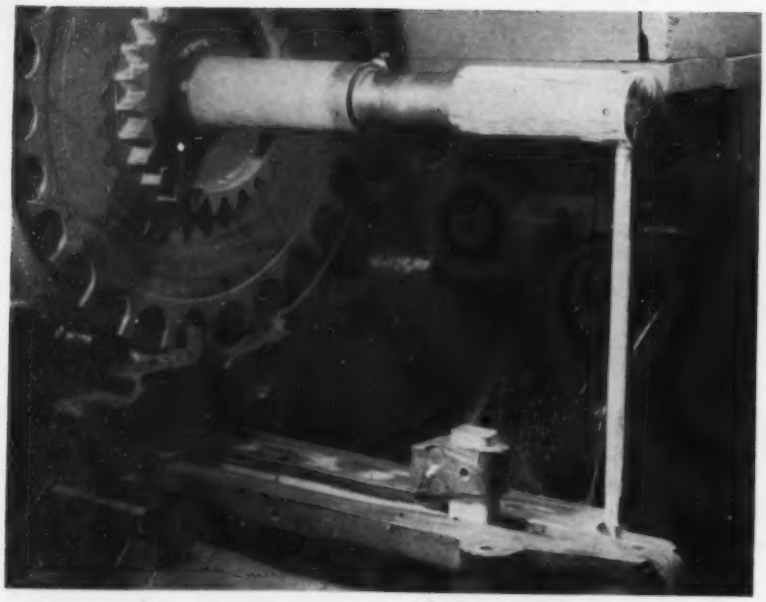
Use the co-op to fill gaps in the working force *(Figure 5)* only when necessary, and plan to avoid this necessity. No serious co-op objects to doing cleaning chores; and no progressive management is going to *assign* him such duties just to keep from hiring cleaning help.

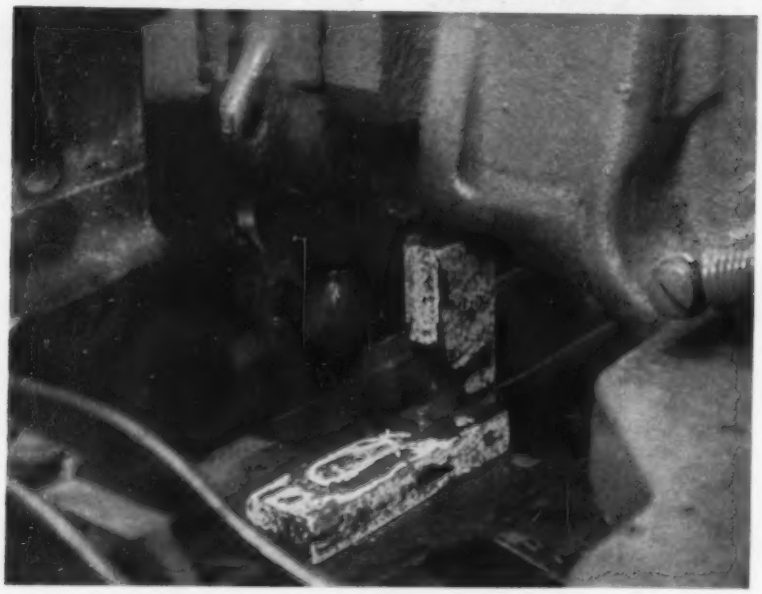
Plan the co-op program to coordinate classroom work with the time in industry, pave the way for the student to progress through the plant to standards *(Figure 2)* or cost control where he finally can see the whole textile scene.

(The author is fortunate in not being close to a hit-or-miss system such as he decrys. His sponsor, Canton Cotton Mills, Canton, Ga., executes this policy set forth by its vice-president, C. K. Cobb: "We establish between the co-op and the department managers the complete task area to give everyone concerned a chance to plan his work and to carry out the assignments so that some conclusion can be reached within the allotted work period." Mr. Cobb is shown to the left in Figure 3 *with John Alford, director of the textile department, Southern Technical Institute, Chamblee, Ga., and who directs the author's class work.—The Editors)*

Keep the student on assignments as constructive, interesting, and as challenging as possible. In this way he finds academic chores *(Figure 4)* take on new meaning as they point out a course of action involving men, money, and machines.

Set him to work with the overhaulers, fixers, section men *(Figure 1)*, for probably he will never again be on such intimate terms with the equipment he later will have to command. Once he has mastered the art of meshing gears, spotting potential trouble, diagnosing maintenance needs, he will speak and move with authority his personnel will respect. And, most important, he will have absorbed some of the atmosphere, philosophy, drive, and motivations of the people he will later direct.





ABOVE: Battery height-gauge, outside. BELOW: Battery height-gauge, inside.

GAUGES in Draper loom maintenance

Why loom gauges are needed in the mill and how to use them

Article 13*—Continuation of discussion on keeping the transfer motion working correctly

Staff prepared Exclusive

THE LAY at front center must position the shuttle beneath the transfer hammer, and fix the farthermost position of the lay. The lay gauge is set up between the box back and the loom horn and the crank arms adjusted until the lay gauge is held lightly between the back and horn. With this position determined, the battery lining-up gauge fixes the battery position in reference to the lay.

The battery height gauge (inside) and battery height gauge (outside) position the battery the correct distance above the lay. All such gauges are next to useless unless approved by Draper as being the ones needed for the looms in question.

The fifth gauge needed to position the battery, the battery end gauge, locates the hopper stand from the end of a lay. This particular gauge has been known to confuse fixers who have positioned the battery while using the bobbin guide as the reference point. If this gives the correct battery position, it's because the fixer has stumbled upon a lucky combination. The proper reference point to use is the pad underneath the hopper stand. This position is reproduced in one of the accompanying illustrations.

In the beginning of this series we promised not to do any overhauling. We are not. But we are going to replace a hopper stand that some bulldozing cloth hauler has bulldozed off . . .

*Article 1 of this series appeared in the January, 1960 issue. Articles 2, 3, 4, 5, 6, 7, 8, 9, and 10 appeared in the February, March, May, June, July, September, October, November, and December issues respectively. Articles 11 and 12 appeared in September and October, 1961. When the series is completed, it will be published in book form.

Remove the hopper stand base. Apply the lay centering gauge and adjust the lay guides to hold the lay exactly on center. Move the lay to front center and check its position with the lay gauge as we have already described. Throw the lay height gauges into place now and make sure the lay is up to correct height. Then break out the new hopper stand. If the old bobbin disk and bobbin disk stud are to be used, lock the stud into place and slide the disk on it. Now check it for wear that allows the disk to droop.

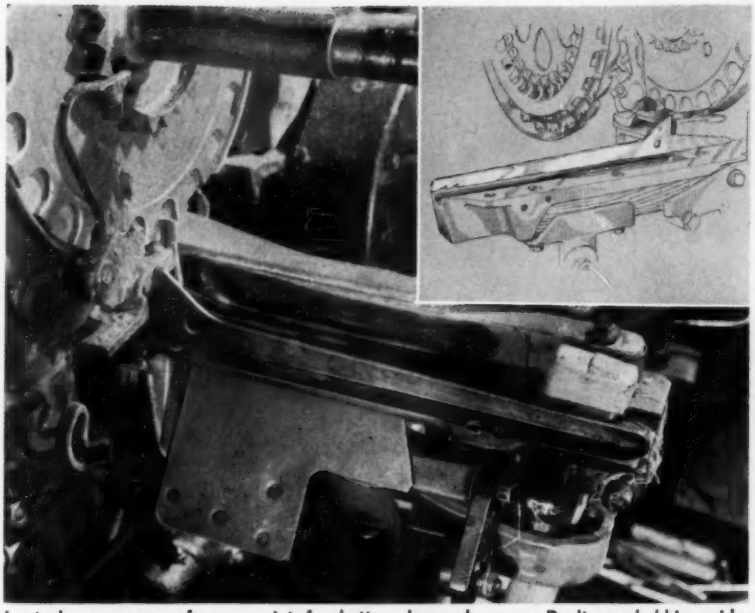
If it droops until the bobbin disk almost touches the hopper stand at the bobbin guide, file the shoulder of the bobbin disk stud above the center enough to lift the stud sufficiently to offset the droop. Be sensible—stop when the bobbin disk turns in a plane parallel to the hopper stand.

With a couple of nuts holding the hopper stand in place (run them down thumb tight), slide the battery height gauge (outside) over the stud. Now set the battery height gauge (inside) on the lay and slide it under the hopper stand. This gauge contains a step that allows it to slide only part way under the battery. If it goes all the way under, the battery setting is too high; if it won't start, it's too low.

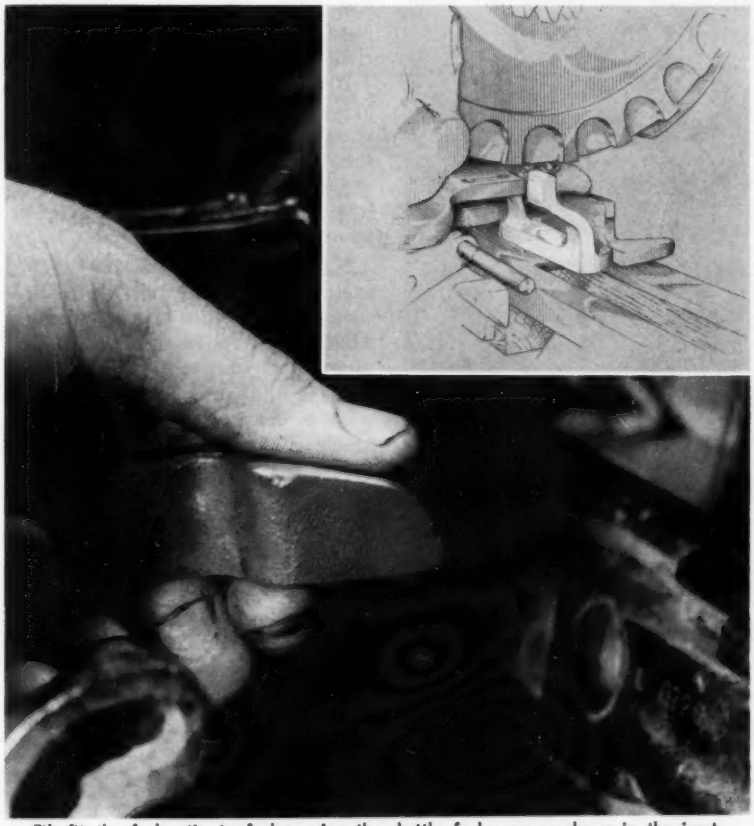
Position the hopper stand from the lay end by placing the battery end gauge flat on the end plate as shown in the accompanying illustrations. This positions the battery for the length shuttle the loom uses; a change in shuttle length necessitates a new battery end gauge reading.

If the hopper stand is hopelessly low, then it is apparent that the file pads must be built up or a steel shim inserted between the breast beam and hopper stand base. Shim stock is all right, but it must be kept on hand whenever the hopper stand is removed. For that reason many mill men prefer building up the base with bronze rod and file-fitting the base down to the correct height.

Slide the battery line-up gauge rod into the hole reserved for the transferrer stud. One pad of this gauge must fit snugly against the reed in the final assembly, so remember that in making the fit.



Inset shows proper reference point for battery lay end gauge. Don't use bobbin guide.



File-fit the feeler tip to feeler, using the shuttle feeler gauge shown in the inset.

Remember too, to put as many drop wires between the pad and reed as were used in setting the reed behind the boxes. See Articles 1-5 on alignment.

Now file-fit the hopper stand

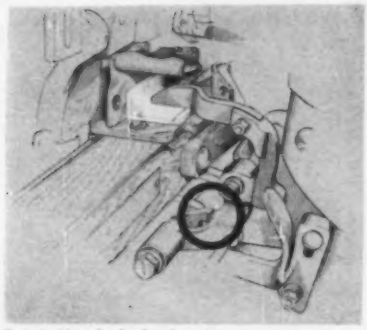


Fig. 3 Shuttle feeler locating gauge position. Feeler tip touches vertical part of gauge and bottom at back and front. Keep the stops (circle) together while locating filling feeler bracket.

The thin portion of the filling cam follower gauge gives grate-to-fork setting.

until the battery height gauge (inside) slips between the lay and the machine portion of the hopper stand bottom. The battery height gauge (outside) must touch the lay end without binding, and the pads of the battery line-up gauge must be snug to and slidable along the reed. (Hint: Keep the lock washers in your pocket until you're ready to tighten the stand down for good.) Dowel the stand to the breast beam.

With the hopper stand permanently in place, proceed to assemble the transfer motion and thread one bobbin into the battery. Rotate this bobbin against the bobbin guide and hold there by the feed pawl, check the transferrer to make sure it clears the hopper stand by at least 1/32".

This is a small but important clearance, and usually when it disappears there is abnormal wear in the pawls, transferrer, bobbin guide, etc. Such wear allows the battery to rock while the loom is running, a condition that snowballs, gains momentum until a part fails.

Filing the binding area is not the answer unless it is known that the parts just mentioned are in good condition. File to get the clearance only when all else fails.

By turning the eccentric stud, adjust the hold-back pawl to allow about 1/64" clearance on the ratchet teeth, with bobbin held against the guide to allow the pawl to drop easily into place after a transfer.

Repeat this at four or five places around the bobbin disk and make sure the clearance doesn't exceed 0.056" at any point (Draper setting instruction sheet #503 describes this setting and supplements it with a drawing). Now, with the feeler indicating a transfer, pick the shuttle to the right-hand box and bring the lay to front center.

With the latch finger and bunter in proper adjustment, the transferrer should now swing down over the bobbin in the shuttle. Give this transferrer 1/16" clearance over the bobbin rings on slow-speed looms, and 1/8" on the high-speed ones. This can be checked by pushing the transferrer down or raising the shuttle in the box.

But the exact clearance can be obtained by bending a short length of strap metal (of the appropriate 1/16" or 1/8" thickness) into a curve roughly approximating the outer diameter of the bobbin rings and using it as a gauge between transferrer and bobbin.

Weld a short length of wire to the gauge to simplify inserting it, and bend the outer end of the wire into a sort of curve to fit over the bobbin and help hold the gauge in place. This setting combines with transfer spring tension to prevent the transferrer from driving a fresh bobbin completely through the shuttle.

This spring tension must be established by trial and error. Start with an empty battery and see if the transferrer will drive the running bobbin out of the shuttle. Find the point, by slacking off on spring tension, at which this knocking out occurs and back off from there. Tighten the spring one hole on a slow loom; two holes on a fast one. *Always* this spring should be able to turn the battery readily.

With the battery properly set, it is possible to adjust the shuttle feeler. Do this by moving the lay forward until the latch finger and bunter engage. Apply the brake to hold the position, and place the shuttle feeler gauge on top of the lay (this is described in Draper Setting Instruction Sheet No. 510).

Loosen the shuttle feeler bracket bolts and the latch depressor cap screw and with the shuttle feeler held over the lay against the stop on the shuttle feeler bracket, move the bracket on the loom side until the shuttle feeler tip rests on and against the back of the gauge.

This distance, or gauging, is not the same for all looms, nor for all shuttle widths, so make sure you are using the shuttle feeler locating gauge recommended by Draper. File-fit the shuttle feeler tip to its carrier and fit the tip against the shuttle feeler gauge that locates the tip from a surface near the bobbin guide on the hopper stand. See the illustrations.

Now, with the shuttle feeler locating gauge in position and with the shuttle feeler in position on the loom side, hold the latch finger in position to engage the bunter and move the lay forward until the latch and bunter just engage. This is the proper position for gauging the shuttle feeler for assembly on the loom side. See *Figure 3*.

So, with the shuttle feeler and shuttle feeler bracket stops in con-

tact and with the tip of the shuttle feeler resting on both the forward and back top surfaces of the gauge and also against the upright surface, the shuttle feeler is located in its best operating position. Tighten the brackets to the loomside, and set the latch depressor to clear the front box plate by ¼" and tighten in place.

Now move the shuttle out of the box until its spur is about 3/16" beyond the shuttle feeler tip and move the lay forward. With the shuttle remaining in this position, the latch finger should miss the bunter by a comfortable 3/16" to revoke the transfer.

The latch finger in correct adjustment should have its engaging corner positioned just opposite the front edge of the bunter when the two are ¼" apart On the newer looms the latch finger has its own adjustment; on older ones one may have to move the latch depressor to position the hunter.

In setting the picker and stick, adjust the distance from the shuttle feeler tip to prevent the shuttle from moving more than 1/32" inside the tip. The wrong shuttle or the wrong picker stand out like sore thumbs, with the shuttle feeler in correct position.

Possible Trouble Spots. To keep the motion working efficiently, watch for wear in the shuttle feeler bushing. This can now be fitted with a bronze bushing to help stave off those false transfers. The hook end of the starting rod spring must always clear the shuttle feeler and the latch finger must be replaced before the eye wears so much it allows the finger to flap around.

Watch especially for wear at the tip of the latch finger where it touches the bunter and for grooves in the shuttle feeler tip where it scrubs the shuttle spur. The slot in the latch depressor can wear, or the stud itself can wear so much the feeler cannot move into position for a transfer. And watch for weak springs or eyes in the filling knife carrier spring. These are not adjustable and must be discarded before they give trouble.

One more thing, a little-noticed recess worn in the lug of the bobbin support lets the support swing too far under the bobbin and eventually lets the downward force from the transferrer break the support itself.

(To be continued)

1960 mill modernization expenditure highest since 1951

■ **EXPENDITURES** for U. S. plant modernization in 1960 were the highest since 1951, the Association of Cotton Textile Merchants of New York stated in its 30th annual "Ten Years of Cotton Textiles" survey. As shown in the accompanying tabulation from the report, 457,848 new spindles were installed during the year and 1,099,986 spindles were rebuilt.

In the decade 4,378,671 spindles have been renewed. Total spindles in place, however, are down 3,000,000 in the decade, although the smaller number averaged 6,255 hours per spindle per year, short only of the 1959 record.

Note that production of cotton textiles was down from 1959 by 310,353,000 sq yd. For the first time in the 30 years the reports have been made, imports of countable cotton cloth in 1960 exceeded exports.

Data assembled by The Association of Cotton Textile Merchants of New York from Bureau of the Census reports and information obtained through the courtesy of machinery manufacturers.

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
EQUIPMENT											
COTTON SYSTEM SPINDLES											
Spindles in place at beginning of year	23,113,000	23,178,000	23,131,000	22,906,000	22,560,000	22,226,000	21,553,000	21,075,000	20,689,000	20,111,000	19,916,000
Increase or decrease from preceding year	−229,000	+65,000	−47,000	−225,000	−346,000	−334,000	−673,000	−478,000	−386,000	−578,000	−195,000
New installation, additions and replacements	771,065	295,642	267,328	219,282	321,920	403,916	190,144	72,708	† 278,832	new 457,848 rebuilt 1,099,986	
OPERATION											
CONSUMING COTTON ONLY											
Average number of spindles active on last working day of month	20,662,000	19,944,000	20,051,000	19,383,000	19,137,000	19,064,000	18,278,000	17,671,000	17,638,000	17,589,000	
CONSUMING FIBERS OTHER THAN COTTON, OR BLENDS											
Average number of spindles active on last working day of month	1,261,000	1,337,000	1,323,000	1,327,000	1,541,000	1,534,000	1,582,000	1,647,000	1,636,000	1,677,000	
ALL COTTON-SYSTEM OPERATION											
Average number of spindles idle on last working day of month	1,264,000	1,887,000	1,572,000	2,015,000	1,628,000	1,234,000	1,443,000	1,539,000	1,036,000	710,000	
Spindle hours run:											
On 100% cotton	118,163,000,000	109,986,000,000	118,647,000,000	108,930,000,000	116,809,000,000	115,210,000,000	107,099,000,000	103,494,000,000	112,185,000,000	110,303,000,000	
On other fibers, blends	7,563,000,000	7,583,000,000	7,487,000,000	7,560,000,000	9,613,000,000	8,550,000,000	9,008,000,000	9,120,000,000	10,396,000,000	10,205,000,000	
Hours run per average active spindle	5,735	5,524	5,901	5,625	6,114	6,008	5,847	5,829	6,360	6,255	
MARKET											
COTTON TEXTILES											
Production in square yards	11,415,218,000	10,593,006,000	11,332,562,000	10,892,456,000	11,319,347,000	12,047,791,000	11,104,675,000	10,469,801,000	11,237,670,000	10,927,317,000	
Exports in square yards	802,427,000	761,595,000	621,005,000	605,047,000	537,493,000	506,570,000	547,824,000	500,932,000	472,207,000	436,749,000	
*Imports in square yards	45,779,000	36,337,000	64,300,000	73,484,000	133,252,000	188,248,000	122,408,000	142,623,000	240,958,000	454,898,000	
Available for domestic consumption	10,658,570,000	9,867,748,000	10,775,857,000	10,360,893,000	10,915,106,000	11,729,469,000	10,679,259,000	10,111,492,000	11,006,421,000	10,945,466,000	
Population at July 1st	154,360,000	157,028,000	159,636,000	162,417,000	165,270,000	168,176,000	171,198,000	174,060,000	177,261,000	180,670,000	
Available for per capita consumption in square yards	69.05	62.84	67.50	63.79	66.04	69.75	62.38	58.09	62.09	60.58	

*Countable Cloths only. †Includes Estimate for Rebuilt Spindleage.

MODERN TEXTILE MANAGEMENT

Article 9—Optimum Lot Size Formula Balances Set-Up and Inventory Costs

by Norbert Lloyd Enrick*
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Exclusive

A MILL will usually have many opportunities to minimize costs through optimum lot sizes. For example, in the dye house, the frequency and cost of setting up dye runs must be balanced against the cost of having money tied up in inventory. The use of relatively large dye lots permits fewer set-ups, thereby reducing set-up costs.

On the other hand, the larger lots will increase the amount of inventory that will need to be carried. Savings made in set-ups can thus be lost easily in inventories. A simple formula will give the right lot size, that balances these two costs so that a minimum over-all cost results.

Finding Lowest Costs. The method of finding the lowest costs may be demonstrated from a yarn dyeing illustration. The following represents typical factors which may need to be considered:

1. Expected yearly sales, Y, of 450,000 pounds.

2. Set-up costs, S, of $80 per lot, based on the labor of cleaning and preparation for each lot and the material lost at start-up, as well as the dye liquor wasted at the end of the run.

3. Interest charge, I, of 8 per cent or 0.08, determined on the basis of investment opportunities for money not tied up in inventory.

4. Dyed yarn costs, D, of $1.00 per pound, representing raw materials costs, spinning and dyeing costs, and other costs going into the production of yarn.

The formula for optimum lot size, as developed by Whitin (2)[1] and adapted for the type of dyeing problem just given (1, 3) is:

$$\text{Minimum cost lot size} = \sqrt{2YS/ID} \quad (1)$$

Using the data given in the illustrative example above, we obtain:

$$\text{Minimum cost lot size} = \sqrt{(2 \times 450{,}000 \times 80) / (1.00 \times 0.08)} = 30{,}000 \text{ pounds}$$

The answer of 30,000 pounds represents the optimum lot size, in terms of minimum over-all costs. In scheduling dye lots therefore, the Production Control Department will be guided accordingly, by seeking to utilize dyeing facilities which come as close as possible to accommodating the best lot size.

Best Order Quantities. The formula for optimum lot size in production will be equally useful in determining the best lot size in ordering raw materials and supplies. Here, in place of a set-up cost, S, a supply-ordering cost, S_o, is substituted in the formula given.

Small orders are costly in terms of losses in quantity discounts and shipping charges. Large orders, on the other hand, involve high carrying costs in terms of interest on money tied up, possible spoilage and obsolescence in storage, and undue floor space requirements. Again, by substituting the supply-ordering costs (S_o) and inventory carrying costs (I_c) in the formula just shown, the order quantity for over-all lowest cost is obtained.

Basis of Lot Size Formula. The development of the formula for optimum lot size may interest the user of the method. It is apparent that any initial lot size, L, will in the long run average out to half that size, or L/2 per inventory period, as yarn is sold and the lot is reduced from full size to exhaustion. The total inventory cost is therefore IDL/2. The annual set-up cost is represented by YS/L. Therefore, total cost, T, is:

$$T = IDL/2 + YS/L \quad (2)$$

The quantity of the lot size, L, which will reduce total cost to a minimum, is found by "differentiating" Formula 2. In this example, this involves essentially dividing both sides of the equation by the lot size, L. We obtain for the Change in Total Cost, dT, per Each Change in Lot Size, dL:

$$dT/dL = DI/2 + YS/L^2 \quad (3)$$

To find the minimum cost, we must set the right-hand side of this expression equal to zero. In particular:

$$DI/2 + YS/L^2 = 0 \quad (4)$$

That lot size, L, which corresponds to minimum cost may now be designated L_m, and is found by solving equation 4. Thus,

$$L_m = \sqrt{2YS/ID} \quad (5)$$

Equation 5 thus derived is identical to Formula 1 used in the applied part of this paper. It is used widely in determining optimum lot size for order quantities, goods in process, and finished goods, where the problems of proper lot size arise.

References

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2. Whitin, T. M., "Theory of Inventory Management," 2d ed., Princeton, N. J., 1957.
3. Young, W. M., "Techniques of Operations Research," August 20, 1954.

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The first article of this series appeared in the March 1961 issue. The tenth and concluding article will appear next month.

[1]Numbers in parentheses designate references at the end of the article.

Doffer-Spinner Work Loads

This system for setting them automatically allows for interference

by Thomas F. O'Connor—Exclusive

PART 1—THE DOFFER

THERE are many situations in industry in which one operator has charge of two or more producing units, or machines, that stop at random intervals and require his attention before they can resume producing. With random stops, there is inevitable overlapping of stop periods by two or more machines in the one assignment.

And since the operator cannot be in two places at once, it follows that sometimes a machine will have to wait, remain unproductive until the operator is ready. This interference, as it is called, is a factor beyond the operator's control.

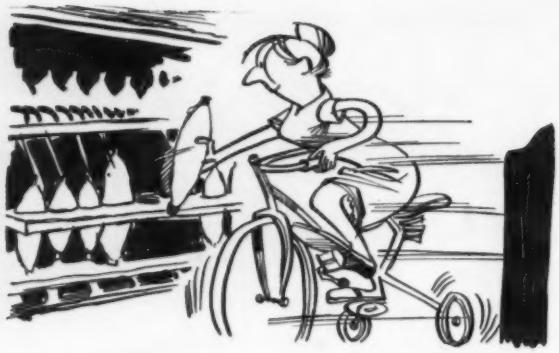
In setting up the standard efficiency for such an assignment of machines, it is necessary to make allowance for production lost in this manner. But there is a difficulty.

Whereas machine running times and operator working times can be measured by time study, it is not possible to settle the interference allowance similarly. The required allowance depends not only on the ratio of operator time to machine time, but also on chance, and therefore it has to be determined mathematically.

Naturally, measures are taken first to cut down interference, but this is a subject much complicated by economics. For instance, if each operator tended only one machine, whenever his machine stopped he would be ready to serve it (in theory at least). There would be no need for an interference allowance, and the problem would be solved.

But on the machines under discussion, the operator working time is small in relation to the machine running time, so that if an operator had only one machine he would spend most of his time in idleness. This might even be desirable if the product had an extremely high profit margin, but mostly it is undesirable as the economics are against it.

Even to keep the assignment low—occupying say half of the operator's time—is usually uneconomic. Therefore multiple assignments are usual, and no matter what we do to curb interference, we cannot do away with it altogether. One way suggested for curbing interference is teamwork, which may be



explained as follows:

It is customary for the operators to work in isolation, each confining his attention strictly to his own machines and ignoring his neighbor's. Under these conditions, just as there are times when some machines are stopped and he is busy, so there are times when all machines are running. He may have other duties assigned for such periods, but assuming there is still time available, he might help his neighbor if his neighbor had two or more machines stopped. This is teamwork.

It is plain there are many "ifs." Nonetheless, some benefit in a production sense is possible, even if it is only that arising from the "cover-up"—that is to say from one operator remaining on the job while the other is absent for personal or other reasons. To show how to evaluate the possible gain from teamwork so as to put it into the standard, or merely to know what to expect, would require a separate article, and it is not proposed to deal further with it here.

Type of Servicing. If each operator services his machines at random, that is, he takes the nearest stopped machine, we call this random servicing. The alternative is "cyclic servicing" in which the operator moves in one direction along the line of machines, doing whatever is necessary to each machine as he reaches it, and never turns back.

On reaching the end of his patrol, which of course is his original starting point, he takes whatever rest pause is standard for the job and afterwards starts out again. Sometimes there is a gap between the last machine of the patrol and the first, though this is the exception. In either case, the walk time is an important part of the cycle time, and should be figured as accurately as possible.

There are many multimachine situations in the textile industry—for example drawing, spinning, winding, weaving, braiding, and knitting. And in the industry both forms of servicing are found, the practice varying from mill to mill.

Spinning is one of the operations in which both forms of servicing are sometimes found side by side —the doffer servicing at random, and the spinner using the cyclic pattern. It is not possible to lay down rules, because hardly any two plants operate in the same way. Some even have one and the same operator perform both sets of duties, the spinner's and the doffer's.

But mostly spinner and doffer are two distinct people and in many spinning mills the spinner works on a set cycle, while the doffer services at random. This makes spinning a difficult process to handle from the standard engineer's point of view.

Typical Situation in Spinning. It is important to bear in mind that there are many varieties of spinning frames, with varying degrees of automaticity in control and other special features in regard to operation; there are many types of yarn and of yarn package; and there are many ways of parcelling out the duties around the machines.

Therefore it would be impossible to write an article that would exactly fit every mill. Instead of aiming at the impossible, we have drawn from what seems to be common practice and have fabricated a hypothetical case which will serve as a basis for a typical example.

Using this, we will show (a) how to obtain the efficiency of doffing with random servicing, and (b) how to obtain the spinner's efficiency on cyclic servicing. The correct assignments will be calculated in each case. Finally the over-all efficiency is compounded of (a) and (b). In all cases we are of course referring to the standard efficiency.

For present purposes then, consider frames of 162 spindles each, each frame of course capable of running or being stopped independently of the others. Moreover each spindle can produce or not produce independently of any other spindle.

A spindle will stop producing, for instance, if an end should break or the supply package be exhausted. But adjacent spindles may continue to produce. "Not produce" however may not mean "not running." The spindle may continue to run, pile up debris, and bring other ends down.

In some mills, the entire frame is stopped automatically when individual packages reach a predetermined size, though in most mills to stop the frame is the duty of the spinner or the doffer. In the latter case it is possible for an intelligent and alert operator to affect the amount of interference to some degree, though it may be at the expense of short doffs.

But it remains true that there will be interference

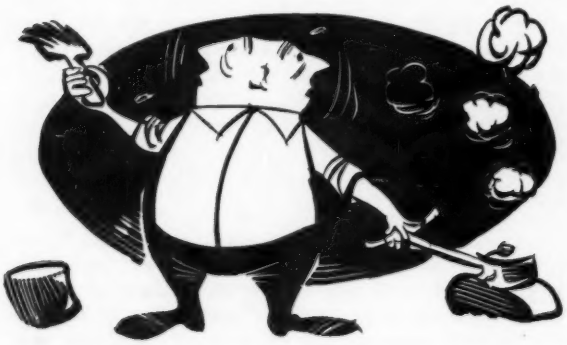
regardless of his best efforts. In such cases also it is clear that equity demands the standard should be set so that the alert operator is given credit for these extra-curricular activities. This means the allowance for interference should not be cut drastically, if at all.

Even without deliberate short doffing, some of the packages (bobbins) on the frame which has stopped or has been stopped will be less full than others, depending on how the interruptions have fallen.

As regards the composition of a tender's assignment, while the spindles of one frame will usually carry all the same sort of yarn, the different frames are quite likely to carry different yarns. However in our preliminary calculations it will be seen that we figure on homogeneous assignments. How to handle the mixtures follows later.

The Doffer. The workers are in several categories such as doffer, spinner, oiler, fixer, cleaner, deliveryman and so forth, but only two of these—the doffer and the spinner—directly affect the efficiency of production. The others, as far as their effect on production is concerned, may be taken together as a composite "auxiliary worker."

Briefly, to indicate the duties of the two principal workers, look at the doffer first: the doffer brings his truck to a stopped frame, doffs the full packages, even those which are not 100% full, puts an empty bobbin on each spindle, and restarts the frame. When the frame is running, and before leaving it, he has other work to do such as piecing up ends. He then prepares to doff another frame. He does no other work which could cause interference, such



as cleaning or lubricating on a priority basis.

Some firms call on the doffer in certain circumstances to do nonpriority work such as traveler changing. I will refer to this later. Since there are several different kinds of yarn in the doffer's assignment of frames, with different running times, the doffs do not occur in sequence so that they could be scheduled in advance, but at random.

It is necessary to emphasize the point since some standards men maintain that the doffer's work is virtually free of interference. This is not so. Even though he may do his best to schedule his work, the demands on his services are random in occurrence, and stops overlap, so that interference is present.

The Spinner. In contrast, the spinner goes around his assignment in a cyclical manner. There is waiting time loss, but it is compensated in a different way. He patrols, piecing broken ends as he comes to them. He also creels as necessary, and does certain cleaning chores which do not call for shutting down the frame. His assignment is usually smaller than that of the doffer. Incidentally, the spinner and doffer both may be women, so the masculine term is to be read as including the feminine.

In regard to the composite "auxiliary worker," only those duties which involve shutting down the frame need to be considered. These include cleaning, oiling, mechanical repairing, and the like.

Procedure. We will be concerned first with the doffer's work, and will show how to calculate his assignment and arrive at the efficiency of doffing, having at our disposal time study data and a stated workload for the doffer.

The initial assumption is that the doffer's work should occupy around 70% to 80% of a standard operator's time. There is a margin left which is partly for the operator's benefit and partly in the interest of interference control. On the understanding that he will have between 20% and 30% of his time free, it is usual not to add any allowance for personal time and fatigue to his task times.

The validity of this practice is somewhat in doubt, especially when the doffer has other duties in addition to his doffing work of about 75%. However, discussion of this point, important though it may be, is not relevant to the purpose of this article, and the practice as stated is assumed to exist in our typical spinning room.

The procedure is to calculate the assignment corresponding to this workload as if all the sides were carrying one count alone, and to deduce the standard efficiency under these conditions. Then two assumptions are made and used: (a) that this efficiency will still be the standard for this count of yarn at all times even though the doffer has a mixed assignment—as long as his total load is around 75%; and (b) that each frame which carries this count yarn rates a fraction of a full load equal to the 75% divided by the number of frames in the calculated unmixed assignment.

This procedure is followed for all the kinds of yarn likely to be run on these frames. A full mixed assignment may then be made by using the fractional workloads as building blocks to a total of about 75%.

The Data. Of the kinds of yarn run on these frames, two will be used for illustration. They are warp yarns, 8s and 30s, respectively. The balance of the time-study data needed will appear in the discussions on setting spinning job loads. Below, symbol r means the frame is running; symbol s, stopped.

Line	Description	8s	30s
D1	Count	8s	30s
D2	Ring sizes, inches	2	2
D3	Front roll diameter, inches	1.375	1.375
D4	Roll speed, rpm	177	116
D5	Twist, turns per inch (tpi)	9.15	19.20
D6	Package weight, pounds	0.253	0.253

TABLE 1

Specimen of O'Connor Tables

P = 0.0200

N	A	A/N	P.A.
1	0.980	0.980	0.020
2	1.960	0.980	0.039
3	2.939	0.980	0.059
4	3.917	0.979	0.078
5	4.894	0.979	0.098
6	5.870	0.978	0.117
7	6.845	0.978	0.137
8	7.819	0.977	0.156
9	8.792	0.977	0.176
10	9.764	0.976	0.195
11	10.735	0.976	0.215
12	11.704	0.975	0.234
13	12.672	0.975	0.253
14	13.638	0.974	0.273
15	14.602	0.973	0.292
16	15.565	0.973	0.311
17	16.526	0.972	0.331
18	17.484	0.971	0.350
19	18.441	0.971	0.369
20	19.395	0.970	0.388
21	20.347	0.969	0.407
22	21.296	0.968	0.426
23	22.242	0.967	0.445
24	23.185	0.966	0.464
25	24.124	0.965	0.482
26	25.060	0.964	0.501
27	25.991	0.963	0.520
28	26.919	0.961	0.538
29	27.841	0.960	0.557
30	28.758	0.959	0.575
31	29.670	0.957	0.593
32	30.575	0.955	0.612
33	31.474	0.954	0.629
34	32.365	0.952	0.647
35	33.248	0.950	0.665
36	34.122	0.948	0.682
37	34.986	0.946	0.700
38	35.840	0.943	0.717
39	36.681	0.941	0.734
40	37.510	0.938	0.750
41	38.325	0.935	0.767
42	39.124	0.932	0.782
43	39.907	0.928	0.798
44	40.671	0.924	0.813
45	41.414	0.920	0.828

P = 0.1250

1	0.889	0.889	0.111
2	1.756	0.878	0.220
3	2.596	0.865	0.325
4	3.403	0.851	0.425
5	4.168	0.834	0.521
6	4.882	0.814	0.610
7	5.535	0.791	0.692
8	6.115	0.764	0.764
9	6.615	0.735	0.827
10	7.027	0.703	0.878
11	7.350	0.668	0.919
12	7.589	0.632	0.949
13	7.755	0.597	0.969
14	7.862	0.562	0.983
15	7.927	0.528	0.991

D7	Doffer's work, s, minutes per doff	5.85	5.85
D8	Doffer's work, r, minutes per doff	4.06	4.06
D9	Auxiliary work, s, minutes per 8 hours	14.4	14.4
D10	Miscellaneous unavoidable delays, minutes per 8 hours	14.4	14.4

Calculations — Doffer. The doffer in our model spinning shed contends with frames stopped for doff by taking the nearest first, which is described as random servicing. As regards the incidence of stops, this is treated as random also.

In theory it may be periodic, but even with no mixing of yarn counts, many factors conspire in practice to upset the periodicity and throw the stops into a random pattern. As a result of this, interference will occur. And since the servicing also is random, the machine efficiency will be found by the use of the O'Connor Tables *(Table 1)*, which are derived from the Ashcroft formula. They provide productivity and efficiency factors which contain a built-in allowance for interference. They do not list interference as such. These tables have been described in these pages already, but to save the reader troublesome cross reference, a brief resume is inserted here along with the specimens in *Table 1*. Looking at the specimen page it will be seen that three factors are involved, labeled N, P, and A, respectively.

N, the number of machines in the assignment, is listed in the left-hand column; P, the cycle ratio is listed at the top of each set of three columns; values of A, the productivity factor, are in the column alongside the values of N. The other two columns give derivatives of A, first A/N and then P.A.

A is the productivity factor for the special case when the tender has no work other than work on stops with priority, and when there are no stops attended by an auxiliary. In the general case, when the tender has work on the machine while it is running, and there is also auxiliary work, the productivity factor is denoted by symbol D. Values of D are not listed but are derived from A by the use of a factor F (then D equals A/F). The factor F will be explained later.

Cycle Ratio, P. The first phase of the calculations is concerned with establishing the values of P, the cycle ratio. It is obtained by adding up all the operator working times having priority (machine running and/or stopped) and dividing this by machine running time at 100% minus operator working time with machine running (priority work only).

All times, of course, are reckoned on a common basis. In the present case the basis is one doff. All times, operator and machine, are per doff, and they are listed in the preceding section on data.

The frame running time per doff (T_c) occupies the first part of the calculations and is reached on line 14 below. The cycle ratio appears on line 19.

Calculations. The twist is imparted to the yarn after the yarn has left the front roll, and the twist causes a contraction in the length of yarn which has been passed by the front roll. The amount of the contraction is given in standard references for any

given value of the twist multiplier.

The twist multiplier is given by the number of turns per inch divided by the square root of the yarn count. The length factor of line 6 is the length, decimal yard, of each original yard after the twisting, and the resulting contraction.

Line		8s	30s
1.	Count		
2.	$\sqrt{\text{Count}}$	2.825	5.477
3.	Twist, tpi	9.15	19.20
4.	Twist multiplier is (line 3) ÷ (line 2)	3.24	3.50
5.	Contraction as a decimal (standard)	0.0376	0.0440
6.	Length factor (1.0 — line 5)	0.9624	0.9560

Hanks per spindle hour at 100% (line 11) are given by:

$$\frac{\text{roll circumference in inches} \times \text{rpm} \times 60 \times \text{length factor}}{36 \times 840}$$

7.	Roll speed, rpm	177	116
8.	Equivalent roll speed, (7) x (6)	170.4	110.8
9.	Front roll circumference, inches	4.3197	4.3197
10.	504 ÷ (9)	116.6	116.6
11.	Hanks per spindle hour at 100%, (8) ÷ (10)	1.462	0.950

Dividing the answer (hanks per spindle hour at 100%) by the yarn count gives the number of pounds of yarn delivered per spindle per hour at 100%, which is line 12.

12.	Pounds per spindle hour at 100%, (11) ÷ (1)	0.1828	0.0317

The running time per doff (T_c) in hours is given by weight of package in pounds divided by pounds per spindle hour at 100%.

13.	Finished package weight in pounds	0.253	0.253
14.	Run time per doff at 100%, (13) ÷ (12) = T_c Hours	1.382	7.97
	T_c in minutes	82.92	498.2

Rating. In what is to follow, worker times will appear. So this is probably the best place to insert a note about the nature of these times. Best described as expected times, they should be the times one expects to find realized habitually over the working shift and week. This implies that one has to consider present circumstances and motivations of the workers.

For instance, if the workers are on piece work or some equivalent form of incentive when the times are measured, then it is possible one will find it necessary to allow more time in the calculations than he actually measured.

On the other hand, if the workers are not now receiving incentive payments, but one is preparing to apply an incentive plan, it is possible he will decide he should reduce the time allowance below what was measured.

One also has to decide what he is willing to pay for his expected times. The times as stated in the data section are also to be understood to have no allowance included for fatigue. Rating, leveling, and allowances are routine time study matters. Once they have been dealt with, there is no need to consider them further, or complicate later phases of the work by juggling with them.

Resuming the calculations, we may put the cycle ratio in the form of a simple algebraic expression:

$$P = \frac{t + t_2}{T_c - t_2}$$

Line		8s	30s
15.	Doff time, minutes, equals t	5.85	5.85
16.	Work while frame is running, minutes, t_2	4.06	4.06
17.	Total doffer's work, $t + t_2$, (15) + (16)	9.91	9.91
18.	$T_c - t_2$, (14) — (16)	78.86	494.14
19.	Cycle ratio, P, (17) ÷ (18)	0.125	0.020

Correction Factors. Correction Factor F takes care of the effect on the doffer's productivity of his priority work during the frame run time:

$$F = (T_c - t_2)/T_c$$

Correction Factor f arises as follows: *Table 1* has been calculated for the negative exponential distribution, a mathematical model very near to what actually occurs. It does however tend to overestimate the interference loss slightly, so that productivity is slightly underestimated.

Factor f therefore is always greater than 1, while factor F has to be less than 1. Taken together we have:

$$D = \frac{fA}{F}$$

The two values for f are 1.025 and 1.01 respectively. Note that:

$$FT_c = T_c - t_2 = \text{line 18}$$

The Doffer's Workload. The next steps in the calculations call for the determination of a trial value of A. Having a trial value of A and the cycle ratio, P, we can use *Table 1* to find a suitable assignment, N.

To get the trial value of A we have to consider the relationship of A with B, the doffer's workload or fraction of time accounted for. For each machine hour at 100%, or machine running hour (mrh), the doffer is busy for $t + t_2$ minutes. The number of these mrh per hour for the whole set of frames in the doffer's care is D/T_c, with T_c in hours. Therefore:

$B = (t + t_2)\, D/T_c$ with T_c in minutes

Now substitute for D and rearrange:

$$A = \frac{FT_c}{f(t + t_2)}$$

We now give B the prearranged or assumed value of 0.75 and proceed to find A as shown in lines 20 through 22.

Line		8s	30s
20.	$(FT_c)/f$ = line 18 divided by f	76.9	489
21.	0.75 x line 20	57.6	367.5
22.	Trial A = (21) ÷ (17)	5.82	37.0

For 8s yarn we already have P = 0.125. And now A = 5.82. Check-

ing Table I under P = 0.125, we find N = 7 gives A = 5.535; and N = 8 gives A = 6.115. Very nearly we may say that N = 7½ is the assignment we are seeking. The fractional assignment is no problem as will be seen.
For 30s yarn, P = 0.020 and A = 37.0. The best value of N here appears to be about 40 (A = 37.510). So 7½ and 40 are adopted.

Estimated Doffer's Efficiency, E_d. We cannot get this in one step. The preliminary estimate of the standard efficiency, E_d, is given by D/N, which is the doffer's efficiency while the frames are available to him.

Line		8s	30s
23.	Adopted maximum assignment, N	7½	40
24.	A (from Table I)	5.825	37.510
25.	F/f = (20) ÷ (14)	0.926	0.982
26.	D = (24) ÷ (25)	6.29	38.2
27.	D/N = (26) ÷ (23)	0.837	0.955

While the doffer is in control of the frames, his, or rather the frame's standard efficiency, is as shown in line 27. How long is he *not* in control? Well, miscellaneous unavoidable delays plus auxiliary work together account for 28.8 minutes in 8 hours. That is 6% of total time. Therefore the doffer is in control for only 94% of the time, and the over-all efficiency of doffing is 0.94 of D/N.

28.	Standard Efficiency, E_d = 0.94 x line 27	0.787	0.898

So far the calculations have proceeded as if the doffer would have 7½ frames all loaded with number 8 yarn, or 40 frames all loaded with number 30 yarn. This of course rarely happens. He is usually assigned a set of frames carrying several different kinds of yarn.

Mixed Assignments. The principle to be used is that, regardless of the mix, any frame carrying 8s yarn should show 78.7% efficiency, and any on 30s should show 89.8% efficiency; similarly for any and all yarns which might be run on these frames — with one important proviso: namely, that the total doffer load be around 75%.

In making up a doffer's assignment, it is assumed that one frame on 8s yarn will constitute 1/7.5 of a full load, and that one frame on 30 yarn will represent 1/40 of a full load. The 1/7.5 and the 1/40 are called unit loads. A unit load, symbol b, is equal to B/N.

$$B = (t + t_2)\ D/T_e$$

We assumed B equals 0.75, but we recalculate as a check.

29.	(Line 26) x (Line 17)	62.3	379
30.	B = (29) ÷ (14)	0.75	0.76
31.	b = B/N = (30) ÷ (23)	0.10	0.019

The individual b of each type yarn would be used like a building block in compiling a doffer's load of about 0.75.

Interference. It is not essential to know how much allowance for interference is included, but it may be a matter of interest if the reader is more at home with a system which uses an interference allowance type of approach. The formula

$$\frac{D}{N} + \frac{Dt}{NT_e} + i = 1$$

and lines 32 through 36 (below) are based on the average operating hour of any frame, while the doffer is in control, being made up as follows: (1) the fraction D/N, frame running time; (2) the fraction Dt/NT$_e$, frame down time while the doffer works on it; and (3) the fraction i, frame down time awaiting the doffer. The sum of these three elements is one hour, and it does not include any time the doffer spends working on a running frame.

Line	Description	8s	30s
32.	Dt = (26) x (D7)	36.8	224
33.	$\frac{Dt}{T_e}$ = (32) ÷ (14)	0.444	0.450
34.	(33) ÷ (23)	0.0591	0.01125
35.	To (34) add $\frac{D}{N}$ from (27)	0.896	0.966
36.	1.0 minus (35) = interference, i	0.104	0.034

About 10% of the hour is wasted in the one case and about 3.5% in the other.

Doffer — Summary. On 8s yarn the doffer would be set a standard efficiency of about 79%, measured by the number of bobbins collected, compared with the number which would be collected if the frame could be operated at 100%. Nothing is said as to the amount of yarn actually wound on the bobbins.

Each frame would represent about 10% of a load, all of this on the supposition that even if the assignment were a mixed one, the doffer would not be occupied more than about 75% of his time on average when working at the standard pace. The interference loss taken into account (in *Table 1*) in arriving at the standard efficiency, is about 10%.

On 30s yarn, the standard efficiency for the doffer would be set at about 90%. The fractional load per frame would be 1.9%. The allowance included for interference would be 3.5%.

► *Part 2, which deals with the spinner's work load, will appear in the December issue.—The Editors.*

Training for survival

Stymied by lack of trained personnel?

Maybe this is the answer

by Raymond C. Gagnon
Director, School of Textiles, International Correspondence Schools

Exclusive

JOE POTTER, president of Potter Mills, had made his decision—"We'll close down for two years, send our employees to school, and reopen when they return. We just can't keep up with our competitors without trained personnel."

Obviously, the above statement and names are fictitious. It really never happened. A mill that has to close down for two years while its employees went back to school would probably never reopen its doors. And, that *isn't* fiction.

Although no mill will ever be in that sad a state of affairs, many are approaching the critical point, that point at which it is impossible or impractical to make certain improvements, changes, or plans for expansion, because of the lack of properly trained personnel.

While Joe Potter's solution seems to be unique, his problem isn't. And he has a problem. Some of the cloth inspectors at Potter Mills don't know the difference between a mispick and a reed mark, a few of his weavers don't have the slightest idea what a wrong draw is, some spinners can't understand why doubles have to be caught quickly, a new fixer can't set the breakage lever on the winders properly, and so on, from one department to the next.

Joe knows the problem exists, and he also knows that the solution lies in properly training the employees that he has or hiring trained personnel. The latter is practically out of the question, because the problem of "too few, too late" in terms of trained personnel is fairly common in today's textile complex. This leaves Joe with the first alternative, training the employees he already has on the payroll.

How To Solve The Problem. How can Joe Potter's employees be properly trained? There are a number of ways in which this can be done. First, the employees can be encouraged to attend evening classes of a resident textile college —provided, of course, there is a textile school nearby. Secondly, Joe can set up a school of his own in the mill. A third method—probably the one most frequently employed—is the correspondence method of training employees.

For years the correspondence school has been a favorite subject for the gag writer. The correspondence school teacher receiving an apple by mail, the home-study student receiving a dunce cap from the postman, the cheerleaders' yell, "Down with Harvard, down with Yale, we get our diplomas through the U. S. Mail"—all of these are classics in the gag writers' and cartoonists' files.

But to the millions of Americans who have received the benefits of home study, correspondence education is no joke. That home study educators can laugh at the humorous aspects of home study is a sign that correspondence education has grown up and has reached

a well-deserved and accepted place in the field of general education.

How Home Study Works. In the home study procedure, the student enrolls by mail or through local sales representatives. The application is then submitted for approval by the registrar and the director of education of the school. If approved, the first instruction texts are sent, usually with a booklet on how to study by the correspondence method. This booklet discusses the study pattern most advantageous to the student. The student then proceeds to study the texts which make up his course.

After the student completes the first assignment he mails it to the school for correction. Highly specialized, well trained members of the instruction staff correct the examination and return it to the student with personal study advice. Each faculty member is specially trained to provide individual analysis of the student's work so that weaknesses can be pointed out. Though the types of examinations offered vary from school to school, personalized instruction service is the foundation of all good home study schools.

The student's progress is indicated on his educational record and the examination is returned by mail. The student reviews the instructor's analysis and applies the principles learned to future assignments. In the meantime, the next examination is on its way to the school, thus completing the procedure for studying by the correspondence method.

Like resident schools, correspondence education consists of a teacher, a textbook, and a student. But in home study, the teacher is built into the text and instruction is written rather than oral communication. Correspondence schools do not teach by mail. Teaching is by the written word and personalized instruction, part of the traditional system of education. The mail is simply the carrier bringing written evidence of the student's understanding to the teacher.

Accredited Home Study Schools. There are a number of accredited home study schools which can help a mill to solve its problems. This holds true whether the problems are incurred in processing, supervision, accounting, business administration, or what have you. Information regarding accredited schools can be obtained from the National Home Study Council (NHSC), Washington, D. C.

Accreditation of a home study school by the NHSC's Accrediting Commission—A U. S. Office of Education approved accrediting agency—means specifically that a school fulfills the requirements set forth by the Council. To obtain accreditation a school must offer sound, up-to-date courses; it must have a competent faculty; it must charge fair and reasonable tuition; it must have demonstrated student success; and it must prove its ability to deliver high-quality educational service.

Our files are filled with case histories of training programs established for America's leading textile firms. The list of textile companies having agreements with us for training their employee force reads like a "Who's Who" of the American textile industry. Among the firms who have training arrangements with us are the following:

Avondale Mills
West Point Manufacturing Co.
Chicopee Manufacturing Co.
Pepperell Manufacturing Co.
E. I. duPont de Nemours & Co., Inc.
American Enka Corp.
Burlington Industries
Chatham Manufacturing Co.
Cone Mills Corp.
Fieldcrest Mills
Saco-Lowell Shops
American Thread Co.
Cannon Mills Co.
Excelsior Mills
J. P. Stevens & Co.
Pacific Mills
Springs Cotton Mills
Celanese Corp. of America

and many, many others.

Do You Have a Training Problem? If you want to survive and prosper where others have failed—either through negligence or lack of properly trained personnel—look into your organization's set-up. Is there a need for training?

Consider these questions: Is your man-hour production tops in every department? Can personnel be shifted from one job to another effectively? Are seconds down to the absolute minimum? Do you have men and women trained to step into specific jobs when the need arises? Is your supervisory force sufficient and fully trained? Are you paying enough attention to the development of management personnel? Is your turnover rate low?

If your answer to any of the foregoing questions is "No," you have a problem. It may not be as bad as Joe Potter's problem, BUT YOU DO HAVE A PROBLEM! ! ! There is a need for training. With such a need, then it would be worth your while to look into the correspondence method of training the people who work for you.

If the textile industry is to once again regain its rightful place in the economy of the United States, the Joe Potters must take positive steps to overcome the obstacle of untrained, ill-trained, or improperly trained employees.

Using long staple cotton? High-elongation fiber will

boost spinning output

Effect of fiber elongation and spinning tension on yarn break elongation and strength

Long staple cottons differing appreciably in fiber bundle break elongation, but with other pertinent fiber properties about equal, were spun into a 60/1 yarn at three levels of ring sizes, traveler weights, and traveler speeds, all of which were evaluated in terms of spinning tension.

Increasing spinning tension directly and significantly affected yarn break elongation, which decreased at about the same rate, regardless of differences in fiber elongation. Yarn uniformity was affected by spinning tension.

In general, increasing spinning tension had very little effect on yarn strength, irrespective of differences in fiber elongation. However, yarn skein and single-strand breaking strengths did not respond similarly to spinning tension.

It was demonstrated that cottons differing in fiber elongation can be spun into yarns of the same elongation when spun under different tensions. Based on these findings, it is postulated that mills may process high elongation cotton to better advantage than low elongation cotton in terms of production rate.

by Gain L. Louis, Louis A. Fiori, and Jack E. Sands

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Exclusive

THIS IS another phase of the investigation of the effect of elongation at break of cotton fiber bundle on yarn processing efficiency and yarn properties (4)[2]. In this study, yarns spun from cottons differing appreciably in elongation had different toughness values (7) which might be indicative that these cottons withstand the stresses in processing differently, particularly in spinning.

This difference in energy-absorptive capacity is important because it may be a measure of a cotton's adaptability to high speed processing, especially in spinning, where high speed production means high spinning tension. Also, because of differences in fiber elongation, the properties of yarns spun under the same and/or different tension may differ. It is, therefore, important to know how spinning tension affects yarn properties, especially yarn elongation.

The present study deals with the effects of yarn tension in spinning on the properties of yarns spun from two long staple cottons differing appreciably in elongations and a 50%-50% blend of these cottons. Data on the 50%-50% blend are presented with the admission that a native cotton having similar fiber elongation value as that of the blend may not react in the same manner. However, such a native cotton was difficult to acquire.

Samples. In this investigation the same low elongation, Strain #330; and high elongation, Pima S-1, cottons as used previously (4) were processed individually (100%) and in a 50%-50% blend, making a total of three lots. For the sake of simplicity, the high, intermediary, and low fiber elongation fibers will henceforth be designated according to their fiber elongation values of 11.1%, 8.8%, and 7.2%, respectively, as shown in *Table 1*.

Experimental Design. In view of the complexity of forces generated in spinning (6), yarn tension in this study refers to that component of the centrifugal force of the traveler acting on the yarn only (8). Air drag and traveler frictional force were assumed to be constant from one test to the next. The centrifugal force of a traveler in motion is defined as follows:

$$F_c = \frac{W}{g} \times \frac{\pi^2 V^2 r}{900}$$

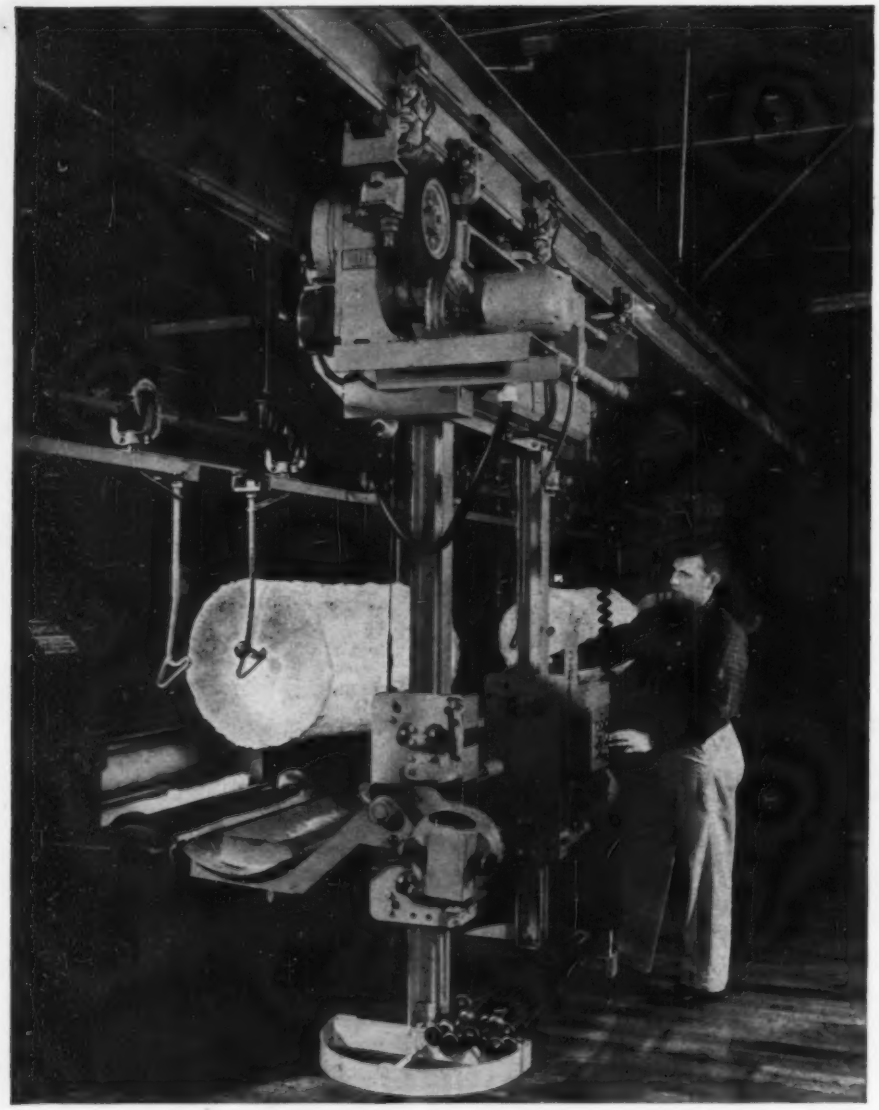
where:

W = Weight of the traveler in pounds
r = Radius of the ring in feet
V = Number of revolutions per minute
g = Gravity constant (32.2 ft/sec/sec)
F_c = Centrifugal force in pounds

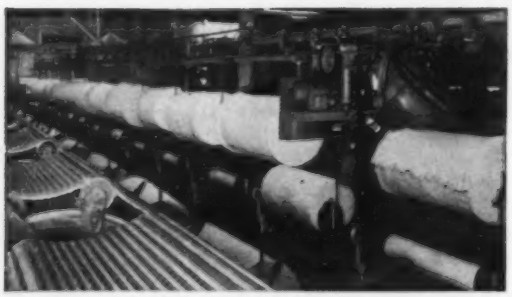
This formula shows that the following factors simultaneously affect yarn tension: ring diameter, traveler weight, and traveler speed. Varying any of these factors can change the yarn tension in spinning. Considerations were given in this study to varying these factors to include the extreme commercial tension ranges (9) to observe their effects on yarn properties as well as to study their significance through statistical analysis.

The three levels of each of the

[1]One of the Laboratories of the Southern Utilization Research and Development Division, Agricultural Research Service, U.S. Department of Agriculture.
[2]Numbers in parentheses designate references at the end of the article.



1 Tender serves 12 (or more) pickers



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For further information use Handy Return Card, Page 167

TABLE 1. Fiber Property Summary[1]

Fiber Property	Cottons		
	100% Strain #330	50%-50%	100% Pima S-1
Grade	2	—	2
Length			
Classer, in.	1⅜	—	1 7/16
Suter-Webb			
UQL, in.	1.35	1.35	1.33
Mean, in.	1.12	1.13	1.13
C V, %	30	29	25
Fineness			
Suter-Webb, micrograms/in.	3.9	3.7	3.6
Maturity			
Sodium hydroxide method, %	89	92	91
Strength			
Stelometer			
⅛" gauge, g/tex	26.4	26.0	30.0
Elongation			
Stelometer			
⅛" gauge, %	7.2	8.8	11.1

[1]Measurements made on picker laps.

three variables selected were as follows:

Ring Diam In.	Traveler Weight Grains	Traveler Speed fpm
1½	0.25	3,000
1¾	0.35	4,000
2	0.45	5,000

In a factorial design, these three variables with three levels of treatment resulted in twenty-seven different yarn tensions in spinning for each of the three cottons used, making a total of eighty-one different treatment combinations ($3 \times 3 \times 3 \times 3 = 81$).

Experimental Procedure. 450 yards of 60/1 (10 tex) yarn with 3.5 twist multiplier were spun on the same frame (Saco-Lowell SS-2[3]) and at the bottom portion of the spinning bobbin for each given yarn tension from 3.0 hank (200 tex) roving according to the above combinations. Yarns were tested for skein strength according to ASTM recommended method (1) and single strand strength and break elongation measurements on an automatic Uster Single Strand Tester. Yarn uniformity measurements were made on the Uster Evenness Tester.

In this study, spindle speed in terms of revolutions per minute was used in place of traveler speed, since DeBarr stated (3) that:

$$\text{Traveler rpm} = \text{spindle rpm} - \frac{D}{2 \times \pi \times R_o}$$

where:

D = Front roll rpm

R_o = Radius of package at the point at which yarn is being wound

Traveler speed is equal to spindle speed minus a factor which remains constant for all 27 tension combinations for three cottons at a given point of each run, so that traveler speed and spindle speed are used interchangeably in this paper. Yarn tensions are expressed in terms of grams per tex (calculated) which may be interpreted as the force exerted per unit linear density of yarn (2). This enables a better comparison between yarn tension and yarn tenacity which is also expressed in terms of grams per tex.

Analysis of Data

The data were analyzed in two ways: (1) Using the analysis of variance to analyze the effects of the changes in ring diameter, spindle speed, and traveler weight on yarn properties; (2) Using calculated simple linear regressions to analyze the effects of different yarn tensions on yarn properties.

Analysis of Variance. *Table 2* summarizes the significance of the

TABLE 2. F Ratios, Showing Significance of Fiber Elongation, Spindle Speed, Traveler Weight, and Ring Diameter on Yarn Properties

Yarn Property	Fiber Elong	Spindle Speed	Traveler Weight	Ring Diam
Yarn Elongation, %	1366.04**	228.71**	26.05**	15.46**
Single Strand Strength	603.94**	0.61	0.07	8.69*
Skein Strength	966.50**	3.75*	4.30*	0.16
Single Strand Strength[1] Variability, %	6.99**	0.89	0.43	0.87
Skein Strength Variability, %[1]	1.78	2.66	0.75	0.93
Yarn Size	3.95*	2.60	0.32	6.76*
Yarn Uniformity, %[2]	33.62**	1.09	4.69*	3.33*

*Significant at the 95% probability level

**Significant at the 99% probability level

[1]Calculated coefficient of variation

[2]Measured on the Uster Evenness Tester

[3]Use of a company and/or product name by the Department does not imply approval or recommendation of the product to the exclusion of others which may also be suitable.

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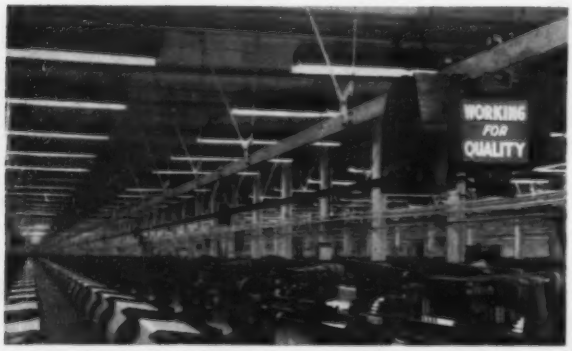
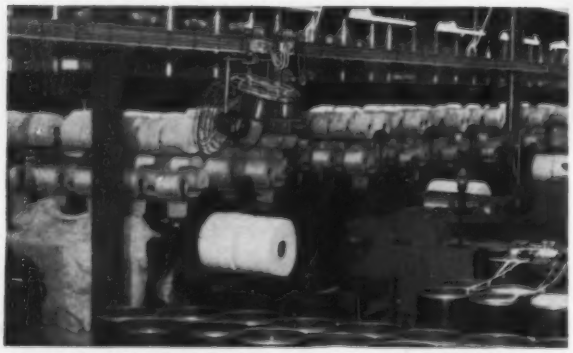


Helicone Loom Cleaners improve quality of fabrics by preventing waste accumulation on stop motions, drop wires, harnesses and reed caps.

Amco Loom Cleaners over Draper shuttleless looms. Sheeting is being woven at high relative humidity.



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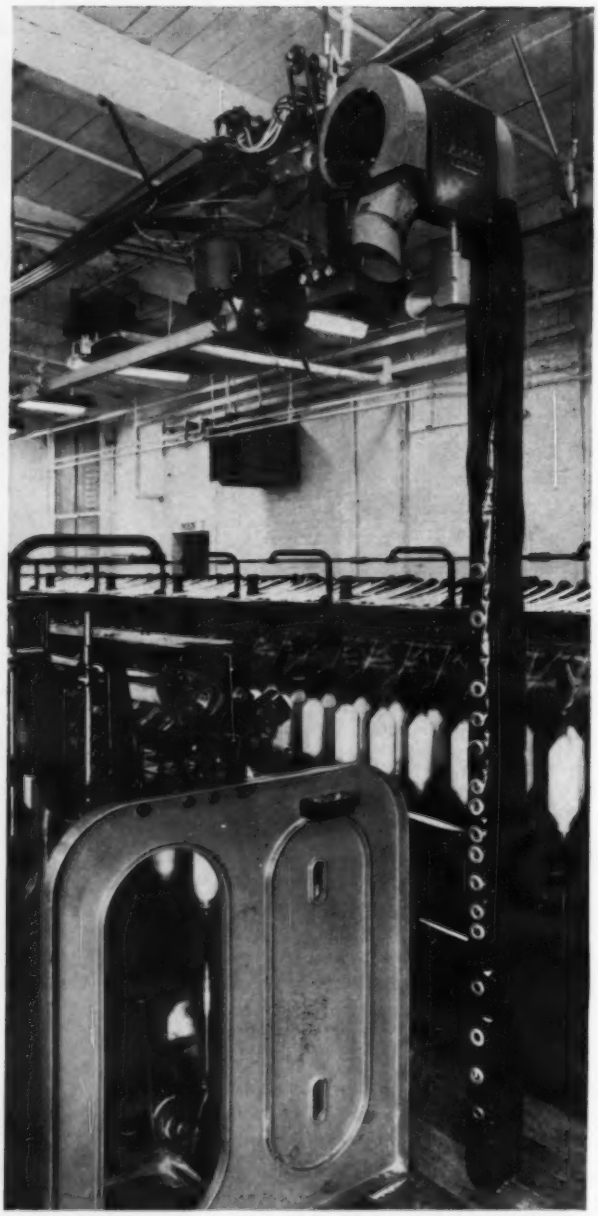

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effects variables induced in the analysis of variance of the yarn property data. The interactions between these variables were not significant and are therefore not included. Changes in fiber elongation, spindle speed, traveler weight, and ring diameter affected yarn elongation to a greater extent than they did any of the other yarn properties tested. Differences among levels for each of these four variables. ring diameter, traveler weight, spindle speed, and fiber elongation) caused highly significant changes in yarn elongation.

The results for skein and single-strand breaking strength do not appear to be consistent. Yarn tension changes due to changes of ring diameter were significant for single-strand strength but not significant for skein strength, while yarn tension changes due to spindle speed and traveler weight were significant at the 95% probability level for skein strength but not significant for single-strand strength.

None of the four variables caused significant changes in coefficients of variation of skein and single strand strengths, but only changes due to cottons were highly significant on coefficient of variation of single strand strength.

Changing yarn tension due to changes in ring diameter caused significant differences in yarn linear density, while changes in yarn linear density caused by differences in fiber elongation were significant at the 99% probability level.

Yarn uniformity data indicated that the effects of fiber elongation are highly significant, while varying ring diameter and traveler weight induced significant difference at the 95% probability level.

Simple Linear Regressions. *Figures 1* and *2* show the general relationship between yarn strengths and spinning tension of the three lots. Apparently, increasing spinning tension has very little effect on yarn strengths irrespective of differences in fiber elongation as depicted by the small and similar slopes of the regression lines. Therefore, the slight inconsistency

FIGURE 1. Effect of spinning yarn tension on yarn skein strength.

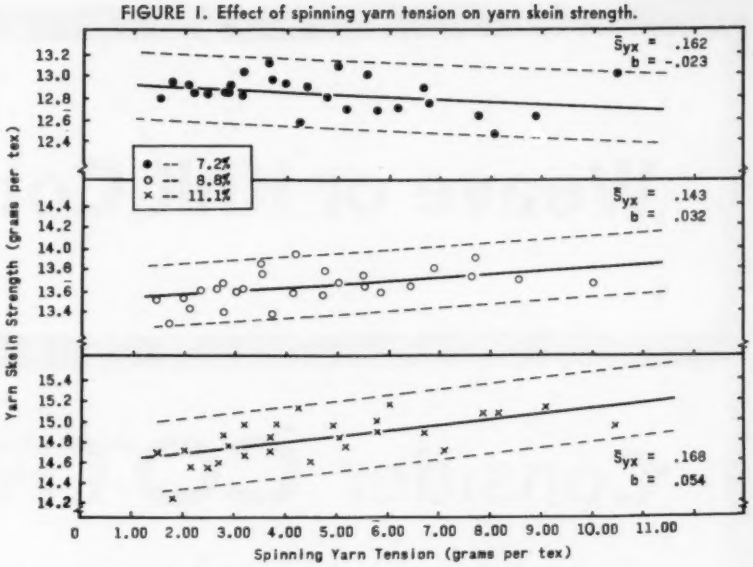


FIGURE 2. Effect of spinning yarn tension on single-strand yarn tenacity.

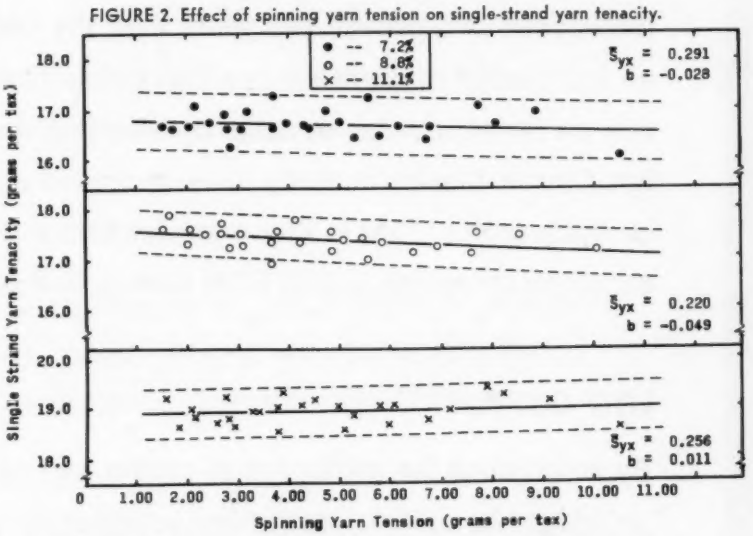
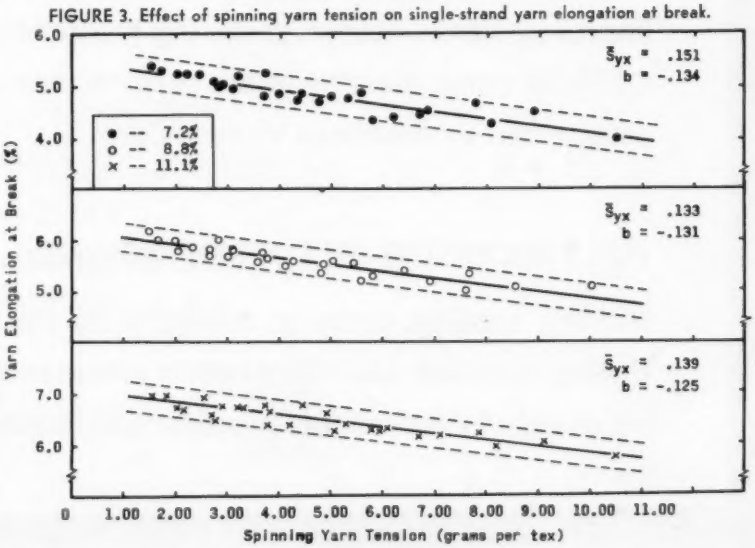


FIGURE 3. Effect of spinning yarn tension on single-strand yarn elongation at break.



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in yarn strength trends exhibited by the regression lines may be negligible since the slopes of these lines are approaching zero. Furthermore, the individual mechanical variables which caused significant changes in yarn strengths mentioned in preceeding discussion evidently have been masked when spinning yarn tension is analyzed as an integral factor.

Figure 3 shows that yarn elongation decreases with increases in yarn tension. However, an increase of yarn tension from a practical range of 2 to 6 grams per tex only decreased the yarn elongation by about ½% (absolute) for all three lots. It is also of interest to note that the slopes of these three regression lines in *Figure 3* are very similar as indicated by the "b" values, pointing to the fact that increasing yarn tension in spinning has similar effects on cottons of different fiber elongation.

Discussion of the Results

Yarn elongation of a relatively fine yarn is directly proportional to spinning tension. Changing spinning tension by changing the spindle speed has the greatest effect on yarn elongation. As a result, it is probably feasible that two cottons differing in fiber elongation can produce yarns with the same yarn elongation by spinning them under different tensions. As an illustration, the 11.1% and 8.8% lots can yield yarn of similar size having 6% yarn elongation if they were spun with yarn tensions of 8.75 and 1.5 grams per tex, respectively.

The advantage, therefore, in using high elongation cotton—cotton with the high impact value, in this case—is that mills will be able to increase spindle speeds and increase production. In the same light, high spindle speed spinning will produce a firmer bobbin and consequently greater yardage may be wound on the bobbin, which means decreased labor cost in doffing and handling in subsequent processes.

Yarn elongation differences (4, 5) indicate that their influence in processing is mainly before slashing, because it was found that yarns with great differences in elongation became similar after slashing. Therefore, using a high-elongation cotton to produce a low-elongation yarn does not sacrifice yarn properties but could result in higher production in spinning.

Acknowledgments

The authors wish to express their appreciation to Norbert A. Bouquet, Jr., for spinning the yarns; to Lorraine Leitz and Audrey Castillon for performing the statistical calculations; to Anne B. Cooper and W. F. McSherry for testing the physical properties of yarns. Special acknowledgment is due Herschel W. Little for setting up the experimental design and providing the statistical analysis.

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News in brief *(from page 19)*

hosiery in the first half of 1961—she bought 82,058 dozen pairs during the six months. Other large purchasers: Argentina, Switzerland, Mexico, Guatemala, and Panama, in that order. Total exports were 317,076 dozen pairs (off from 346,266 dozen pairs in the first half of 1960).

Honor Pastore. His support of the textile industry's tariff-quota position has earned the Annual Award of the New York Board of Trade's Textile Section for Senator John O. Pastore (D., R.I.). He'll receive the award at a luncheon in New York on November 9.

More Textile Research. The textile and apparel industries are spending more money for research, the National Science Foundation reports. Latest figures (for 1958) is $19 million, compared with $17 million the year before.

Yarn Groups May Cut Expenses. The Carded Yarn Association, meeting in Sea Island, Ga., recently, voted to defer for one year action on a proposal to share the expense of executive direction with the Combed Yarn Spinners Association. The proposal was referred for further study to the carded group's board of directors with instructions for the board to consult with the combed yarn organization.

Roll Calls More Often. When Congress reconvenes in January, legislation will probably be introduced to provide for a national census every five years instead of every ten. A House Postoffice Subcommittee, chairmaned by Rep. Lesinski (D., Mich.), is conducting hearings on the proposal in several cities across the country during the Congressional recess.

Automation Short Course. A week-long course in automation, computers, and instrumentation will be conducted at Georgia Tech, Atlanta, February 12-16, 1962, under the joint sponsorship of Tech

and Instrument Society of America. For details, write Richard Wiegand, director, Short Courses and Conferences, Georgia Institute of Technology, Atlanta, Ga.

OIL-STAINED CLOTH indicates a serious leak in a mill's profits. It's a sign you should find out about Texaco's "Stop Loss" Program **now.**

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. . . and can boost your profits by as much as 4%

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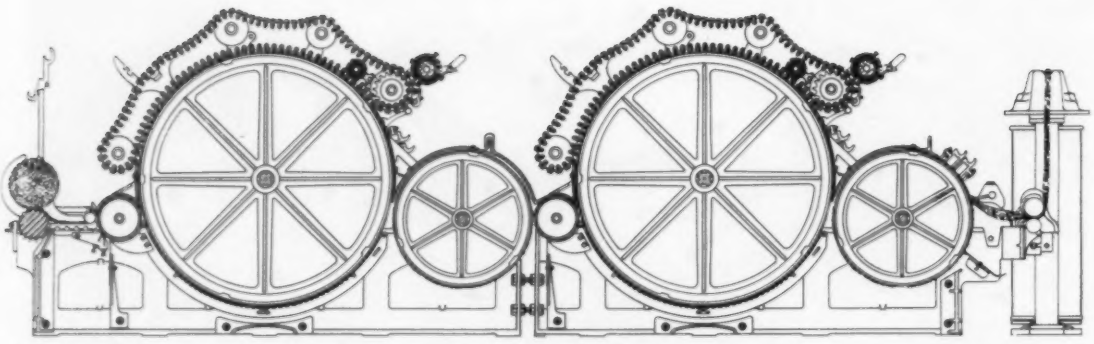
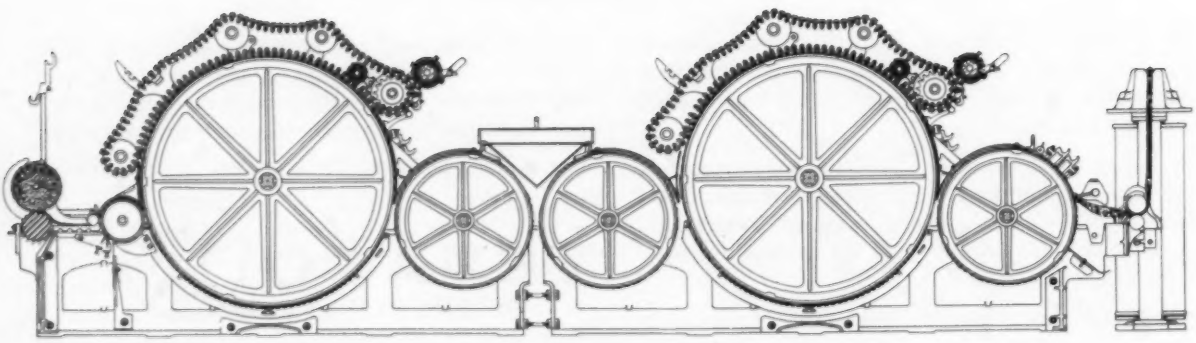


DuoCard — Using transfer cylinders of different diameters: Doffer-to-Licker-in (PATENT APPLIED FOR)

Shown schematically, above, is the Saco-Lowell Doffer-to-Licker-in DuoCard (Patent Applied For).



DuoCard — Using transfer cylinders of same diameter: Doffer-to-Doffer (PATENT APPLIED FOR)

The Saco-Lowell Doffer-to-Doffer DuoCard (Patent Applied For) is also available to mills everywhere through special licensing arrangement.

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As a result, DuoCarded fibres have less neps, are cleaner and brighter, with greater elongation. Fabrics produced by the DuoCard System have a smoother appearance and better hand.

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26 s	Carded Knitting Yarn	26 s
13	Lap Weight (oz.)	13
55	Grain Sliver	55
22.87	Production @ 100% eff.	8.10
2.55	% Waste	3.87
2.2	U — per cent	3.2

Call in your Saco-Lowell Sales Engineer to discuss purchase of DuoCard equipment, or conversion of your present carding equipment to the DuoCard System, **built for better performance, backed by better service.**

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web control NEWS

Volume 1, Number 4

Walter Chrysler once said something to the effect that we seldom have time to do a job right but we always have time to do it over...

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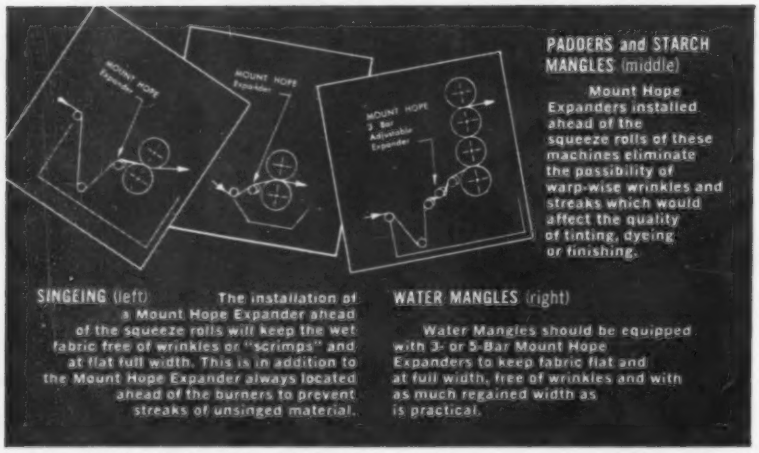

PADDERS and STARCH MANGLES (middle)

Mount Hope Expanders installed ahead of the squeeze rolls of these machines eliminate the possibility of warp-wise wrinkles and streaks which would affect the quality of tinting, dyeing or finishing.

SINGEING (left) The installation of a Mount Hope Expander ahead of the squeeze rolls will keep the wet fabric free of wrinkles or "scrimps" and at flat full width. This is in addition to the Mount Hope Expander always located ahead of the burners to prevent streaks of unsinged material.

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Water Mangles should be equipped with 3- or 5-Bar Mount Hope Expanders to keep fabric flat and at full width, free of wrinkles and with as much regained width as is practical.

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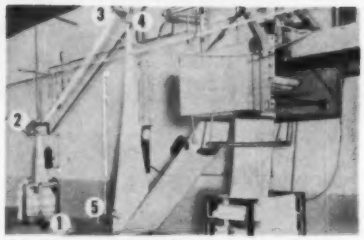
It is a practical impossibility to list all the potential uses of our Expanders but a few wet processing applications are shown above. Our bulletins (yours for the asking) list many more but your best guide is a personal survey by Your local Mount Hope Engineer.

Or write us for more information.



Packaged Cloth Opening Range is Complete, Automatic and "Kind to Cloth"

Shown above is a typical set-up of the newest model of Mount Hope's cloth-opening equipment. Continuously improved over the last 15 years, this equipment is designed to handle one of the industry's toughest problems.

No. 1 (above) is the Automatic Turntable Detwister. In operation, you merely push the cloth truck onto the Turntable and the detwisting job proceeds automatically.

No. 2 is the adjustable Tension Device which squeezes out excess moisture while regulating tension. No. 3 shows the Overhead Sheave with adjustable stainless steel poteye which guides the cloth into a 16" diameter hard rubber covered sheave with a 60 degree V-groove. The exclusive patented Detwister Switch (No. 4) is mounted on the sheave and controls the Detwister. The Mount Hope Cloth Opener (No. 5) features the well-known, service-proved Mount Hope Precision Guiders. When goods are opened directly from white bins instead of trucks, the Bin-Type Detwister as shown below is used in place of the turntable. For complete details, send for more information.

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- Selvage Uncurlers
- Continuous Roll Feeds
- Tension Controls
- Textometer (Moisture Control)
- Web Viewer
- Other Specialized Equipment

The following are Registered Trade Marks: Mount Hope; Bow Skew Liner; Free-Wheeling Expanders

Mount Hope Web Control Equipment MACHINERY COMPANY

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For more information on the products mentioned above or on any cloth handling problem, contact Mount Hope or check the Reader Service Card. Please write in on the card the product(s) you are interested in.

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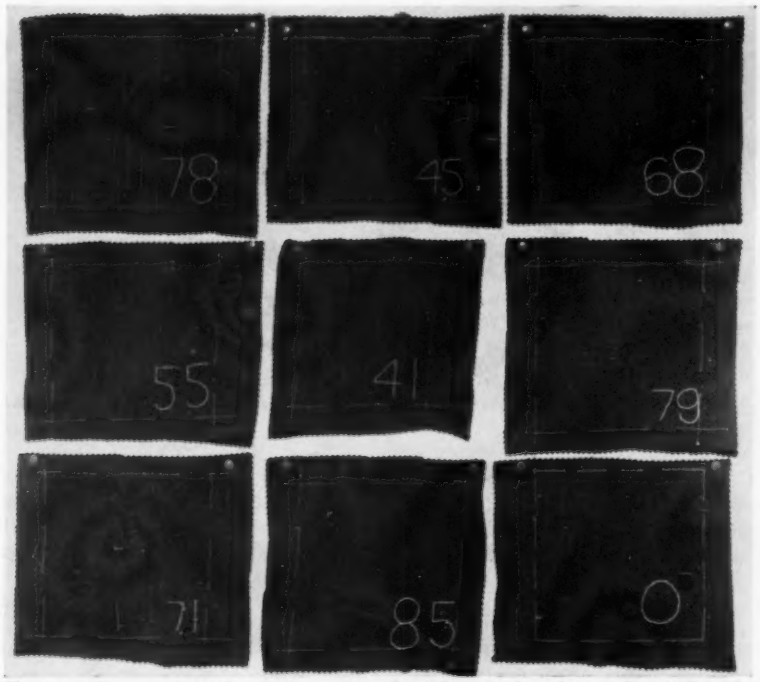

These samples were treated with the amino polyamide-epoxy formulations described in the article. The white lines were originally six inches apart in each sample. Note how the untreated control sample (No. 41 in the center) has shrunk in comparison with the others.

One-bath process for no-shrink wool

on regular finishing equipment, using a mixture of two resins

by **Edwin G. Sutcliffe**
Chief Chemical Engineer
Samuel Hird & Sons
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Exclusive

THE CURRENT trend to nonshrinkable fabrics has had an impact in the worsted field as well as in the other branches of the textile industry. The literature for many years has included references to a multitude of processes, yet none has achieved commercial significance.

One of the approaches to the nonshrinkable fabric, proposed by Pardo and O'Connell of the Western Regional Research Laboratory in 1957, utilized an epoxy resin and a polyamide. This method was reported on with considerable detail in the press at that time.[1]

To review briefly, their process consisted in the formulation of a suspension of the following concentration:

5% by weight Versamid 115
5% by weight Epon 562
0.25% by weight nonionic detergent
8% ethyl acetate
Balance water

Their recommendations included either a two-bath or single-bath method of application.

In the two-bath method the polyamide was applied and dried on the fabric before applying the epoxy, but for obvious reasons

[1]The latest refinement of WRRL's process is described in TEXTILE INDUSTRIES for January 1961, page 61.

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TABLE 1. Resin Solubility in Various Reagents

Reagent	Epon 562	Versamid 115
2-ethylhexanol	SS	S
Monochloro-benzene	S	I
Isopropyl-benzene	SS	S
2, 2, 5-Tri-methylhexane	I	I
Diisobutyl ketone	I	S
Dithiodi-glycol	I	S
Nonyl alcohol	S	S
Hexyl ether	I	I
Methyl phenol carbinol	SS	S
Diisobutyl carbinol	I	I
20% acetic acid	S[1]	S
20% ammonium hydroxide	I	I
3 A alcohol	—	S
5% oxalic acid	S[1]	—

S—Soluble

SS—Slightly soluble

I—Insoluble

[1]Hot

TABLE 2. Solutions Used in Finding Shorter Curing Time

Solution	Versamid 115 g	Epon 562 g	Solvent—ml	Other Reagents—g
A	1.875	—	3 A alcohol—150	ethyl acetate—3.0
B	—	1.875	20% acetic acid—150	Tween 40—0.25
C	3.70	—	3 A alcohol—150	ethyl acetate—3.0
D	—	3.70	20% acetic acid—150	—
E	—	3.70	5% oxalic acid—150	Cyanatex 3106—0.25
F	—	3.70	20% acetic acid—150	Cyanatex 3106—0.25*
G	5.0	5.0	water—400	ethyl acetate—8.0 Tween 40—0.25

*Also added 0.5 g aluminum chloride

most of the commercial work was concerned with the application of the combined resins with subsequent curing. They also felt that an uptake of 3.5 to 4.0% of the resins was necessary for good shrinkproofing. The curing time mentioned was one hour at 105 C.[2]

A series of fabrics was processed with formulations approximating this process, and in some cases excellent results were obtained. However, other types of construction were less cooperative; one of these was an 18-oz whipcord. This showed about 8% shrinkage with a 4.5% resin uptake.

The construction of this fabric was:

18.0 oz/yd at 9% regain, 60" width

78 ends x 61 picks per in.

Warp: 26/2, 18 tpi in ply

Filling: 17/1, 9½ tpi

The reason for the failure on this type of material was probably the nature of the emulsion or suspension. If a solution containing the desired reactants could be produced, there were high hopes for success.

Resin Emulsions Used. A series of experiments covering one hundred and fifty variations was set up and followed through in the laboratory. The bulk of these data are far too large to be covered by a single report, therefore only those data that appear to be pertinent will be presented here.

First step was to evaluate the relative solubility of the Epon 562 and Versamid 115 in various solvents. *Table 1* summarizes these data.

At this point it is important to point out that suggested curing time of one hour at 105 C would be inconsistent with mill processing; a more realistic approach is necessary. Therefore the subsequent development had three major aims:

(a) Shrink-proofing of all types of worsted fabrics

(b) Curing time of twenty minutes or less

(c) A single solution method rather than either the two-bath method or a single-bath using a suspension or emulsion.

The cloth used in the experiments was the 18-oz whipcord.

Table 2 gives the series of solutions used to establish a combination giving shorter curing time.

The method of preparing Solution G: The 5 grams of Versamid 115 are weighed into a 250-cc beaker and to the same beaker are added the 5 grams of Epon 562. 8 grams of ethyl acetate and the 0.25 grams of Tween 40 are weighed on separate watch glasses. The Tween 40 is dissolved with the ethyl acetate and added to the 250-cc beaker. The beaker is placed in a warm water bath and stirred until a clear, smooth paste results. To this mixture is added slowly, with constant stirring, 82 cc of cold (70° F) tap water.

Finally the mixture is diluted to a volume of 400 cc; this gives a good suspension.

Table 3 lists a series of samples impregnated in various ways with the preceding solutions. Each cloth sample was cut to weigh 20 grams.

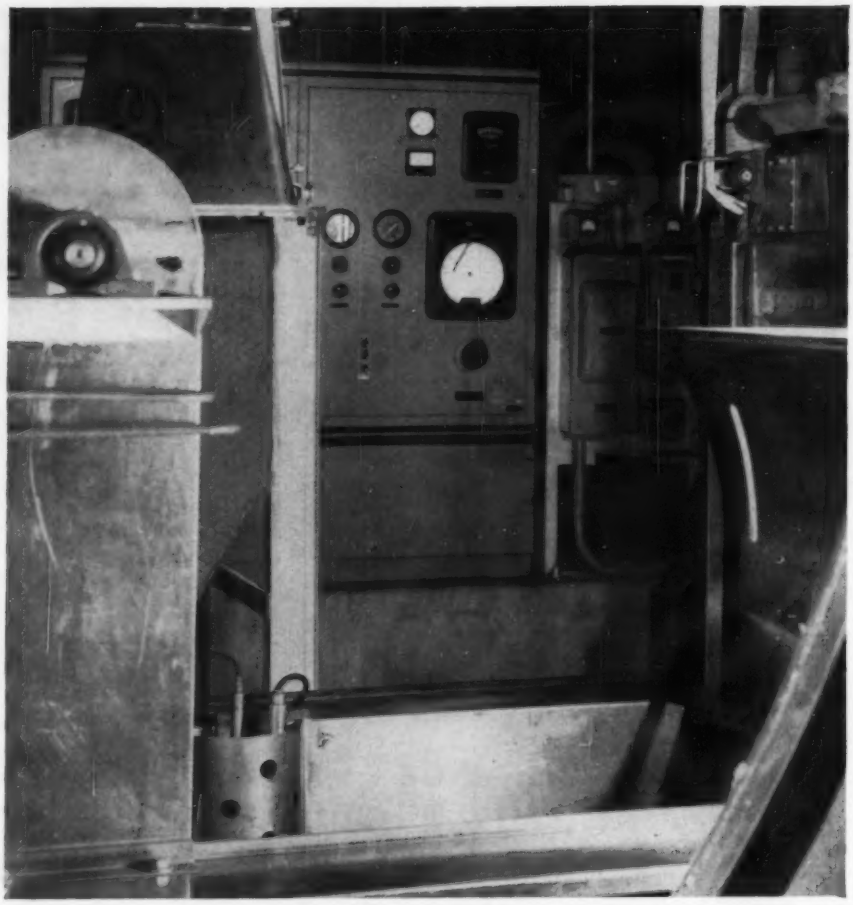
The method of application was to add the first solution to the 20-gram cloth sample (marked with three sets of lines, six inches apart warpwise and three sets six inches apart fillingwise) rolling with a rubber roll until all the solution was absorbed, drying, and in cases where a second solution was used, repeating the process. The cloth was then transferred to an oven for curing under the previously determined condition.

In all cases there is a preliminary shrinkage as a result of the application of these solutions — probably because of relaxation.

A group of selected samples was submitted to American Cyanamid Co., who assisted by applying AATCC Test 41-52. The results of these tests and also measurements taken before the scouring and after the curing are given in *Table 4*.

Comparison between Samples 1

[2]The current recommendation is 10 min at 135 C (275 F). A typical resin formulation is:
1.2% amino polyamide (e.g., Versamid 125)
1.8% epoxy (e.g., Epon 828)
0.15% nonionic emulsifier (e.g., Igepal DM-710)
3.0% ethyl acetate
Balance water



Compact, cabinet-mounted installation of Foxboro Concentration Control for weak acid saturator in a large mill. Cabinet also contains Foxboro Temperature Controller and Pneumatic Loading Controls.

Over 50 modern mills now save with—

COMPLETELY AUTOMATIC CONTROL

For these and other important operations

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Sulfuric Acid	Souring after Desizing Souring after Mercerizing Wool Carbonizing Dilution for other Processes
Sodium Hypochlorite	Dilution for Bleaching
Muriatic Acid	Souring after Causticizing
Acetic Acid	Souring after Causticizing

Savings in time, labour, and chemicals amounting to as much as $120 a week have been realized by leading mills through the use of Foxboro Concentration Control! This accurate, completely automatic system eliminates time-consuming manual checks. Once the Controller index pointer is set at the desired value, proper bath concentration is automatically maintained throughout the working period. What's more, *constant* Foxboro Control assures a *smooth* flow of chemical to the bath . . . prevents strong surges . . . frees personnel from hazard of handling strong chemicals.

Besides positive control action, the Controller provides a continuous chart record in percent concentration, °Be, or °Tw . . . proof of proper bath conditions and a foolproof means of duplicating them. Protect uniformity in your mill and save — with Foxboro Automatic Concentration Control. Write for full details. The Foxboro Company, 4811 Neponset Avenue, Foxboro, Mass.

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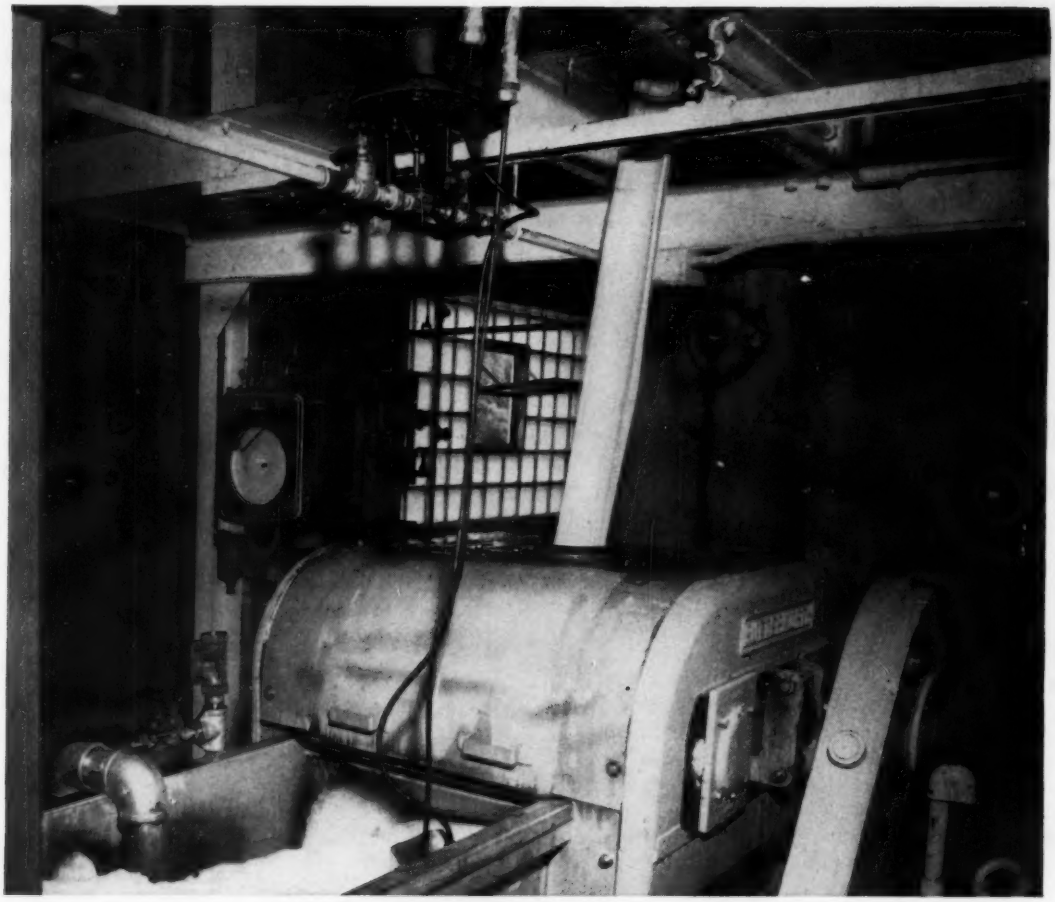

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The rugged, highly accurate Foxboro Dynalog* Controller is used for this system. Its measuring element is a conductivity cell installed in the bath. Whenever bath concentration falls below proper value, control action instantly operates a valve in the feed line . . . automatically supplies the exact amount of strong chemical required. Controller is quickly adjustable for any concentration within its range.

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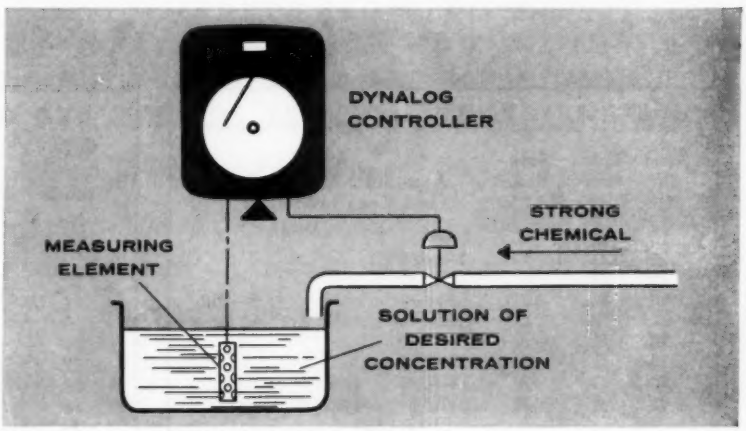

FOR TEXTILE PROCESS CONTROL

TABLE 3. Preliminary Test Procedures

Sample No.	Solution 1* cc	Solution 2* cc	Cure min—°F
1	A—30	B—30	3—320
2	A—30	B—30	6—240
3	B—30	A—30	3—320
4	B—30	A—30	6—240
5	G—30	—	3—320
6	G—30	—	6—240
7	30**	—	3—320
8	30**	—	6—240
9	C—35	D—35	3—320
10	C—35	D—35	6—240
11	D—35	C—35	3—320
12	D—35	C—35	6—240

*From *Table 2*.

**Water and Cyanatex 3106.

TABLE 4. Test Results

Sample No.	Shrinkage After Curing		Area Shrinkage After AATCC Test 41-52
	Warp in./6 in.	Filling in./6 in.	%
1	0.375	0	13.9
2	0.375	0	13.9
3	0.437	0.0625	—
4	0.500	0.125	25.0
5	0.125	0.0625	16.1
6	0.375	0	16.1
7	0.500	0.125	27.2
8	0.437	0.125	—
9	0.250	0.125	8.3
10	0.250	0.062	—
11	0.250	0.125	—
12	0.312	0.062	—

and 4 shows the importance of applying the Versamid before the Epon. Samples 7 and 8 are the controls. In all cases the samples show improvement, although none can be considered shrink-proof at this level. The improvement in Sample 9 shows the value of the increase in reagent concentration.

Sample 9 merits further consideration. Comparing it with the untreated sample, the following differences in percentage shrinkage are noted:

	Blank	Sample 9
1. Cold water		
Warp	8.3	5.2
Filling	2.1	1.0
2. AATCC Test 41-52		
Warp	12.5	6.2
Filling	14.6	1.0
3. Felting shrinkage (2-1)		
Warp	4.2	1.0
Filling	12.5	0

Sample 9 is approaching success as far as the elimination of felting shrinkage is concerned. It is however a two-bath operation and the temperature of the cure is too high.

Eliminating Relaxation Shrinkage. The results of the first series indicate very strongly that the cloth under treatment has excessive relaxation potential. To get better estimates of the success of applied treatments, it was desirable to remove this. The cloth therefore was subjected to a cold-water shrink similar to that covered in Army specifications. The resulting material was used in the following tests.

Test samples weighed 20 grams, and contained the six-inch lines. *Table 5* explains this series of tests.

The samples listed in *Table 5* were evaluated as to immediate effect of the treatment, and again selected samples were subjected to AATCC Test 41-52. *Table 6* gives the results.

Effect of Wash Before Cure. Samples 16, 17, 20, and 21 show the effect of introducing a wash before cure. In all cases it is detrimental. Comparison of Samples 15 and 19 versus 14 and 18 shows the importance of adequate cure. Both samples cured at 225 F were very inferior to those cured at 240 F.

It may be noted at this point that the curing temperature has been dropped to 240 F from the 325 F appearing in preliminary experiments. It is felt that, although the higher temperature has much to offer, on a mill basis the

TABLE 5. Tests to Eliminate Relaxation Shrinkage

Sample No.	Solution 1*	Solution 2*	Additional Treatments and Cure (min—°F)
13	D	C	6—240
14	D	C	20—240
15	D	C	12—240
16	D	C	Soap-soda wash, dry; 6—240
17	D	C	Soap-soda wash, dry; no cure
18	B	A	20—240
19	B	A	12—225
20	B	A	12—225
21	A	B	Soap-soda wash, dry; 12—225
22	—	—	Blank;12—225

*From *Table 2*; each 35 cc.

NOTE: Samples air-dried between first and second solution adds.

TABLE 6. Test Results

Sample No.	Shrinkage After Curing		Area Shrinkage After AATCC Test 41-52
	Warp in./6 in.	Filling in./6 in.	%
13	0.062	0.062	—
14	0.062	0.062	6.1
15	0.062	0.062	21.6
16	0.250	0.125	—
17	0.250	0.187	—
18	0.125	0	6.1
19	0.062	0.062	27.2
20	0.250	0.187	—
21	0.312	0.125	—
22	0.187	0.125	—
22a	*	*	27.2

*Blank

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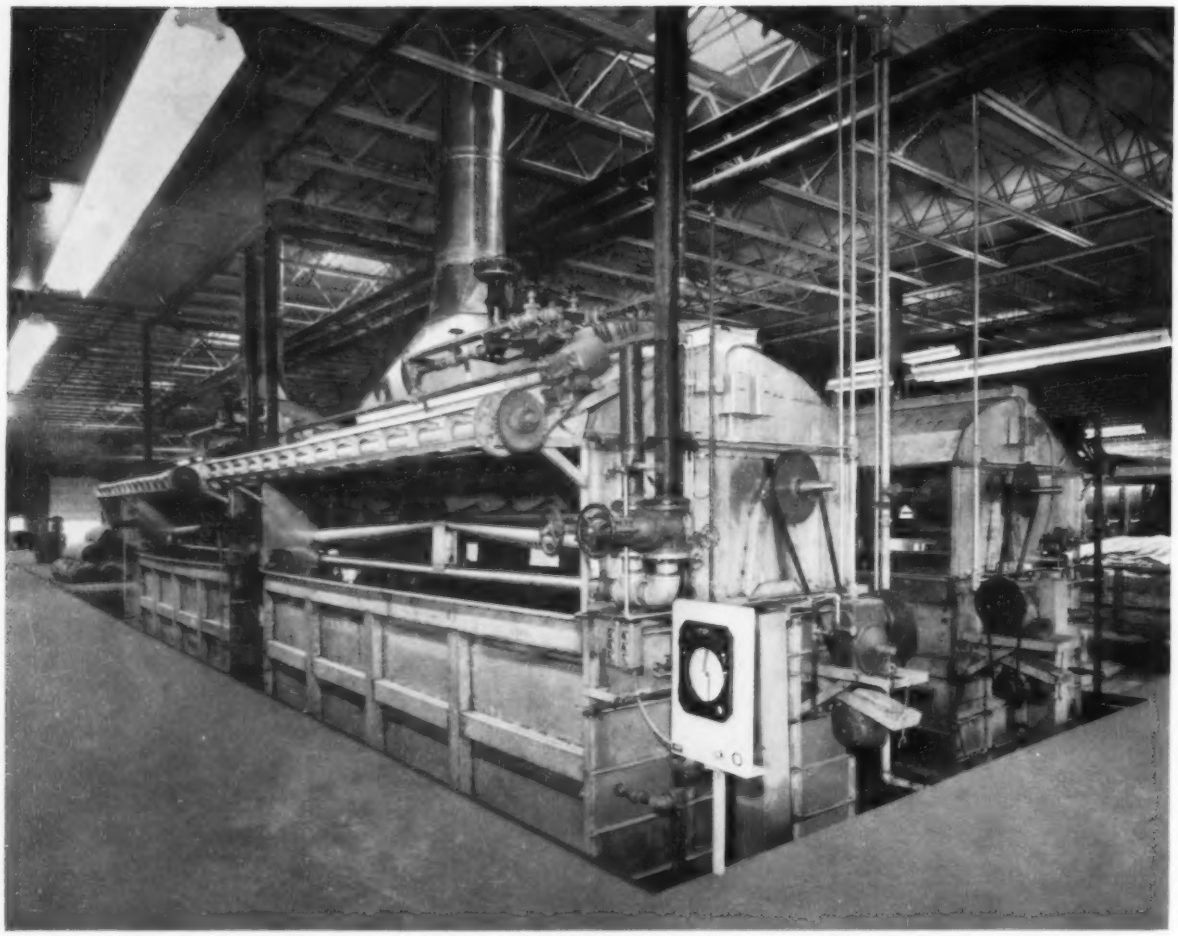

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TABLE 7. Tests of Single-Bath Method

Solution	Epon 562	Versamid	Other Adds	Type Solution
H	3.7 g/150 cc 20% acetic acid	3.7 g 115/25 cc 3A alcohol	0.5 g Cyanatex 3106	Clear yellow solution
J	3.7 g/150 cc 10% acetic acid	3.7 g 115/25 cc 3A alcohol	0.5 g Cyanatex 3106	Clear yellow solution
K	3.7 g/150 cc 5% acetic acid	3.7 g 115/25 cc 3A alcohol	0.5 g Cyanatex 3106	Clear yellow solution
L	3.7 g/150 cc 10% acetic acid and 3 g aluminum chloride	3.7 g 115/25 cc 3A alcohol	0.5 g Cyanatex 3106	Solution slightly hazy
M	3.7 g/150 cc 10% acetic acid and 3 g sodium bisulfite	3.7 g 115/25 cc 3A alcohol	0.5 g Cyanatex 3106	Clear-warm; milky-cool
N	3.7 g/150 cc 10% acetic acid	3.7 g 125/25 cc 3A alcohol	0.5 g Cyanatex 3106	Clear yellow solution
O	3.7 g/150 cc 10% acetic acid	2.0 g 115 and 1.7 g 125/25 cc 3A alcohol	0.5 g Cyanatex 3106	Clear yellow solution
P	9.0 g Versamid 115, 7.5 g Epon 562, and 1.5 g Epon 828/20 cc ethyl acetate and 160 cc cold water		1.0 g Tween 40	Heavy emulsion
Q	3.7 g/150 cc 5% acetic acid	4.2 g 125/25 cc 3A alcohol	0.5 g Cyanatex 3106	Clear
R	7.0 g/150 cc 10% acetic acid	7.0 g 125/25 cc 3A alcohol	0.5 g Cyanatex 3106	Clear
S	7.4 g/150 cc 10% acetic acid	7.4 g 115/25 cc 3A alcohol	0.5 g Cyanatex 3106	Clear
T	7.4 g/150 cc 10% acetic acid	7.4 g 125/25 cc 3A alcohol	0.5 g Cyanatex 3106	Clear
U	7.4 g Versamid 115 and 7.4 g Epon 562/20 cc ethyl acetate and 160 cc cold water		1.0 g Tween 40	Very thick, poorly penetrating emulsion
V	7.4 g Versamid 125 and 7.4 g Epon 562/20 cc ethyl acetate and 160 cc cold water		1.0 g Tween 40	Emulsion
W	7.4 g/150 cc 10% acetic acid	7.4 g 115/25 cc 3A alcohol	0.5 g Cyanatex 3106 and 3.0 g sodium lactate 50%	Clear

NOTE: All solutions prepared at 140 F unless otherwise indicated.

240 F is more in line with present equipment and drying practices.

It might be pointed out that 1.6% shrinkage in area is about equal to 1% in warp and filling. Also note in the case of Samples 14 and 18 that shrinkage accounted for before scouring was 1.6%, therefore the actual shrinkage due to felting was 4.5%. The best result the Department of Agriculture had attained on the same cloth at this level was 4.9%.

Single-Bath Method. Up to this point, with the exception of Solution G listed in *Table 2*, all the work has been done with a two-bath method, but from now on the single-bath approach is concentrated on. The major effort is to keep this single bath a solution rather than a suspension, as in the case of the single-bath proposed by Pardo and O'Connell.

Table 7 lists the series of solutions prepared to test the validity of a possible single-bath treatment. Solutions U and V are along the lines suggested by the Department of Agriculture Research Team and are emulsions or suspensions, not true solutions.

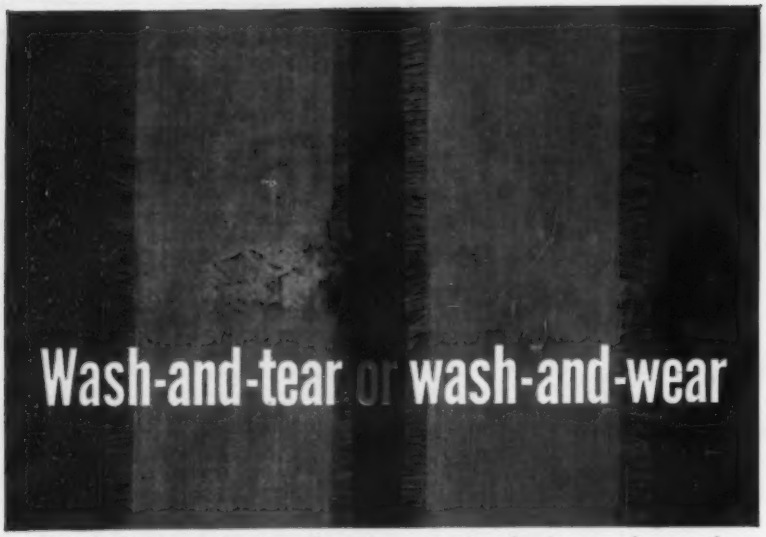
In general, two samples of cloth were treated with each solution; one sample was cured for 20 minutes at 240 F, and the second for 20 minutes at 300 F. Because the bulk of the samples thus accumulated reached such substantial numbers, it was decided to process the group as a lot in a home auto-

Table 8. Samples for Multiple Laundering Tests

Sample No.	35 cc Solution	Cure min—°F	Sample No.	35 cc Solution	Cure min—°F
23	H	6—285	39	P	15—289
24	H	8—285	40	P	20—287
25	H	20—240	41	**	No cure
26	H	20—240	42	Q	15—300
27	*	No cure	43	Q	20—287
28	H	12—240	44	R	20—240
29	J	10—286	45	R	20—283
30	J	20—233	46	S	20—233
31	K	10—284	47	S	20—282
32	K	20—236	48	T	20—240
33	L	20—236	49	T	20—282
34	M	20—236	50	U	20—240
35	N	10—280	51	U	20—282
36	N	20—290	52	V	20—240
37	O	10—288	53	V	20—282
38	O	20—288	54	W	20—240
			55	W	20—282

*40 cc water

**Blank



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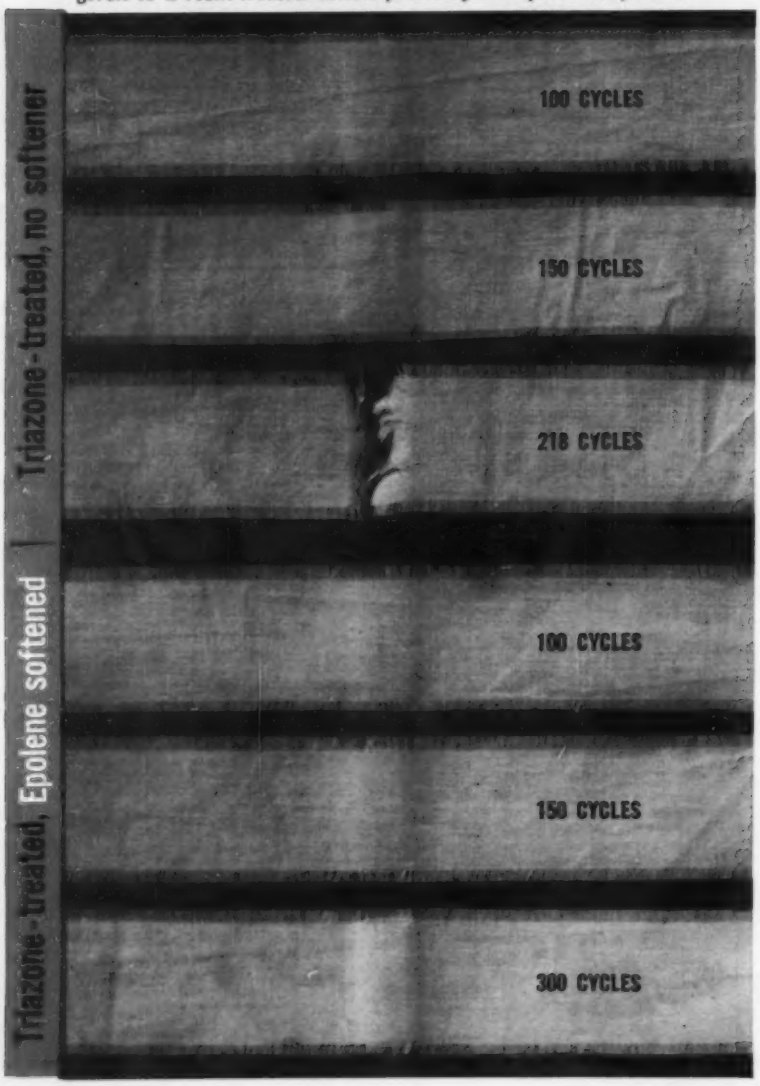

IT is axiomatic in the textile industry that the finishing resin alone does not a wash-and-wear fabric make. In fact, the variables are many, and often complex.

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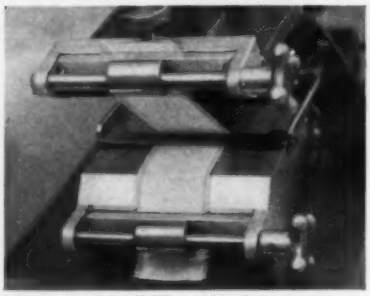

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wear resins in use today. These include triazone, triazene, melamine formaldehyde, methylated melamine formaldehyde, dimethylol ethylene urea, and methylated urea-formaldehyde type finishing resins. The results of these test procedures are available to aid you in selecting the right softener for your finishing requirements.

For further information about Epolene textile emulsions, their preparation and use, contact your Eastman representative, or write Eastman Chemical Products, Inc., subsidiary of Eastman Kodak Company, Kingsport, Tenn.

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matic agitator-type washer. A drying cycle in a tumble dryer followed, and then finally a flat press. This processing is far more severe than any standard test method now in use.

The wash in the home laundry used 4 oz of a red-oil soap per load, with a wash cycle of 30 minutes at 120 F, followed by a standard rinse and whiz dry. Six-inch lines were formed on the cloth samples in a square. After the application of the epoxy and the subsequent cure, these lines were gone over with a sewing machine to insure their permanence through the home-laundry operation.

Table 8 identifies the samples processed with the various solutions and shows the type of cure used on each sample.

To avoid bogging down in detail, only samples showing a loss of ⅛" or less as a result of the first home laundry test are included in *Table* 9. This table shows the progressive effect of repeated washings on the more select of the proposed procedures. This continuing evaluation has not been disclosed for other methods of shrink-proofing.

The blank after five of these washings has lost 33% of its origi-

TABLE 9. Shrinkage After Repeated Wash Tests

		Wash No. 1		Wash No. 2		Wash No. 3		Wash No. 4		Wash No. 5		Wash No. 6	
Sample		Loss in.	Area Shrinkage %	Loss in.	Area Shrinkage %	Loss in.	Area Shrinkage %	Loss in.	Area Shrinkage %	Loss in.	Area Shrinkage %	Loss in.	Area Shrinkage %
29	W	0.125	3.05	0.250	8.05	—	—	—	—	—	—	—	—
	F	0.063		0.250		—		—		—		—	
35	W	0.125	3.05	0.125	3.05	—	—	—	—	—	—	—	—
	F	0.063		0.063		—		—		—		—	
36	W	0.063	1.94	0.188	6.13	0.375	11.4	—	—	—	—	—	—
	F	0.063		0.188		0.375		—		—		—	
38	W	0.125	3.05	0.250	8.05	—	—	—	—	—	—	—	—
	F	0.062		0.250		—		—		—		—	
39	W	0.062	1.11	0.125	3.05	—	—	—	—	—	—	—	—
	F	0		0.062		—		—		—		—	
40	W	0	0	0.062	1.11	0.250	6.13	0.250	6.13	0.250	6.13	0.250	6.13
	F	0		0		0.125		0.125		0.125		0.125	
42	W	0.125	3.05	0.125	3.05	0.312	9.15	0.312	9.15	0.312	11.10	—	—
	F	0.062		0.062		0.250		0.250		0.375		—	
43	W	0.125	4.18	0.125	6.13	0.312	9.15	0.375	12.20	0.375	12.20	—	—
	F	0.125		0.250		0.250		0.375		0.375		—	
44	W	0.125	4.18	0.125	6.13	0.250	6.13	0.375	10.00	0.250	9.44	—	—
	F	0.125		0.250		0.125		0.250		0.312		—	
45	W	0.125	3.05	0.125	2.22	0.250	6.13	0.250	6.13	0.250	6.13	0.250	6.13
	F	0.062		0		0.125		0.125		0.125		0.125	
49	W	0.125	3.05	—	—	—	—	—	—	—	—	—	—
	F	0.062		—		—		—		—		—	
50	W	0.125	1.67	—	—	—	—	—	—	—	—	—	—
	F	0		—		—		—		—		—	
51	W	0.125	3.05	—	—	—	—	—	—	—	—	—	—
	F	0.062		—		—		—		—		—	
53	W	0.062	1.11	0.062	4.44	0.188	5.28	0.312	8.35	0.312	9.44	—	—
	F	0		0.188		0.125		0.188		0.250		—	
55	W	0.125	3.05	0.125	3.05	0.250	6.13	0.375	8.05	0.312	7.22	0.312	7.22
	F	0.062		0.062		0.125		0.125		0.125		0.125	
41	W	0.375	13.90	0.500	20.00	0.805	29.90	0.812	31.70	0.875	33.00	—	—
	F	0.500		0.750		1.125		1.250		1.312		—	

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TABLE 10. Tests of Various Additives

Solution	Epon 562	Versamid	Other Adds	Type Solution
X	7.4 g/150 cc 10% acetic acid	7.4 g 115/25 cc 3A alcohol	0.5 g Tween 40, 3.0 g dibasic sodium phosphate in 30 cc water	Clear
Y	7.4 g/150 cc 10% acetic acid	7.4 g 115/25 cc 3A alcohol	0.5 g Tween 40, 3.0 g potassium chlorate in 30 cc water	Clear
Z	7.4 g/150 cc 10% acetic acid	7.4 g 115/25 cc 3A alcohol	0.5 g Cyanatex 3106, 3.0 g potassium iodide in 30 cc water	Clear; ppt on standing
AA	7.4 g/150 cc 10% acetic acid	7.4 g 115/25 cc 3A alcohol	0.5 g Tween 40, 3.0 g potassium chlorate in 30 cc water	Clear
BB	7.4 g/150 cc 10% acetic acid	7.4 g 115/25 cc 3A alcohol	0.5 g Tween 40, 3.0 g dibasic sodium phosphate in 30 cc water	Clear
AC	7.4 g/150 cc 10% acetic acid	7.4 g 115/25 cc 3A alcohol	0.5 g Tween 40, 3.0 g potassium carbonate in 30 cc water	Clear; slow evolution of gas
AD	7.4 g/150 cc 10% acetic acid	7.4 g 115/25 cc 3A alcohol	0.5 g Tween 40, 3.0 g sodium silicate in 30 cc water	Clear; ppt on standing
AF	5.4 g/150 cc 10% acetic acid	7.4 g 115/25 cc 3A alcohol	0.5 g Tween 40	Clear
AG	3.7 g/150 cc 5% acetic acid	4.2 g 125/25 cc 3A alcohol	0.5 g Tween 40	Clear
AH	5.4 g/150 cc 10% acetic acid	7.4 g 125/25 cc 3A alcohol	0.5 g Tween 40	Clear
AI	7.0 g/150 cc 10% acetic acid	7.0 g 125/25 cc 3A alcohol	0.5 g Tween 40, 3.0 g acetic anhydride in 30 cc water	Clear, dark yellow solution
AJ	7.0 g/150 cc 10% acetic acid	7.0 g 125/25 cc 3A alcohol	1.0 g Mod-Epox, 25 cc ethyl acetate	Emulsion
AK	7.0 g/150 cc 10% acetic acid	7.0 g 125/25 cc 3A alcohol	0.5 g monoethylamine boron trifluoride	Clear
AL	7.5 g/150 cc 10% acetic acid	7.5 g 125/25 cc 3A alcohol	0.5 g Tween 40, 0.5 g monoethylamine boron trifluoride	Clear
AM	5.0 g/150 cc 5% acetic acid	6.0 g 125/25 cc 3A alcohol	0.5 g Tween 40, 2.0 g monoethylamine boron trifluoride	Clear
AN	5.0 g/150 cc 10% acetic acid	6.0 g 125/25 cc 3A alcohol	0.5 g Tween 40, 2.0 g monoethylamine boron trifluoride	Clear

nal area; those of the proposed samples are stabilized at a 6% loss. These samples, to the eye, are only slightly different than the original sample; in comparison, the blank is now a thick felt.

Samples 40 and 45 are really outstanding. Sample 40, however, was prepared from a very heavy emulsion-type mixture that was very slowly absorbed by the cloth, and it is doubtful if there would be sufficient take-up in conventional padding. It varies from proposed methods of the Agriculture Department in that two epoxies are used and the cure is determined at a higher temperature for a shorter period of time.

Sample 45 seems to be the logical starting point for mill exploration; it satisfies all our original requirements. It is a stable, clear solution that penetrates easily into the cloth; it polymerizes satisfactorily; and the shrink-proofing attained is excellent.

The next series of tests was of various additives, to see if the reaction could be catalyzed in some manner. *Table 10* lists the solutions used.

Mod-Epox has been used as a catalyst and to assist in cross linking. Although it seemed practical to use here, it was not successful under the test conditions.

Table 11 identifies the samples processed with the solutions of *Table 10*, and gives the cure applied to each.

In tabulating the results of the home-laundry trials, only samples showing a loss of ¼" or less were considered. *Table 12* gives these data.

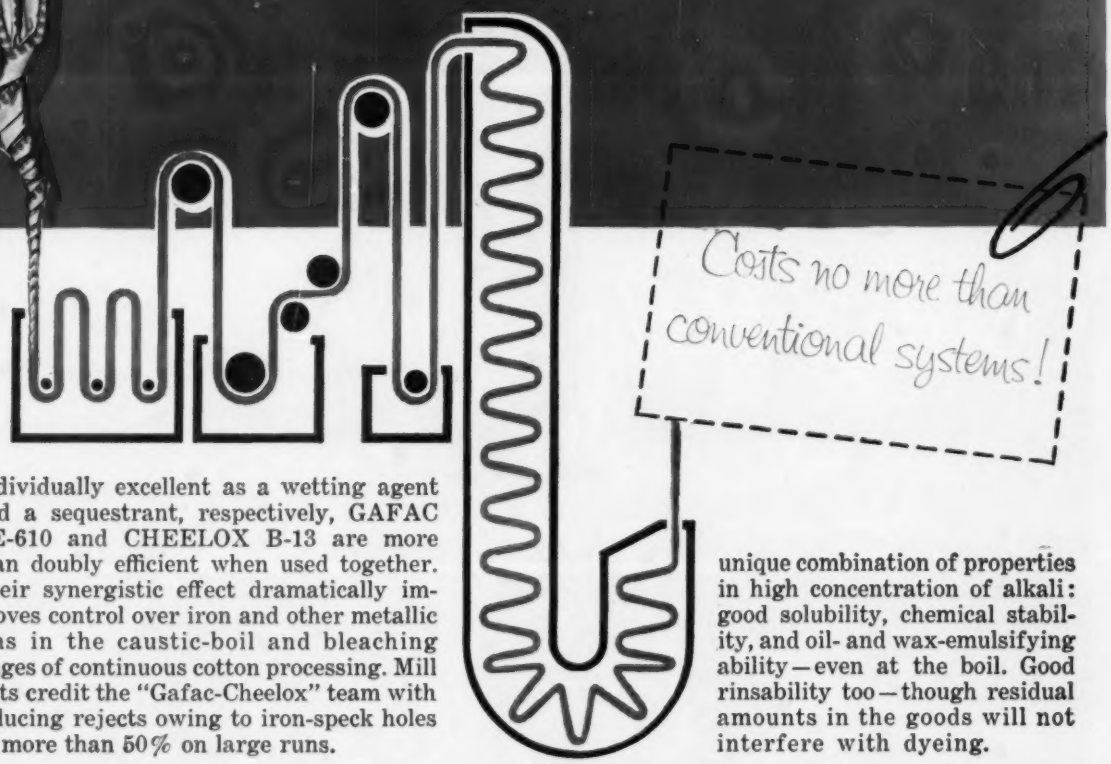
Discussion. *Figures 1* and *2* summarize the data. Samples 40, 45, 55, 68, 71, 78, 79, and 85 have a great deal to offer, especially if the severe nature of the evaluating test is considered. The accompanying photograph shows the extent of variation existing between the blanks and the test specimens.

Consideration of the solutions used on the illustrated samples tends to eliminate those used on Samples 40 and 85 from the list of desirable procedures. The samples that deserve to be tested at a mill level are those used on Samples 45, 68, and 71. All of these are clear solutions, relatively simple to apply. If the temperature-time element cannot be reached, the procedure used on Sample 78 offers value.

Although the samples selected have an area shrinkage of about 6.4% at the point of stabilization, a considerable proportion of this is continued relaxation shrinkage. This was established by rewetting a blank, prepared as in Sample 0 in the photograph, until on drying it was dimensionally stable. The blank so stabilized measured 5.875 inches in the filling and 5.812 inches in the warp. This is equivalent to an area of 34.2 square inches. The loss of area (1.8 square inches) is equivalent to a shrink-

GAFAC® RE-610 wetting agent with CHEELOX® B-13 sequestrant

can cut rejects 50% or more in continuous bleaching of cotton goods



Individually excellent as a wetting agent and a sequestrant, respectively, GAFAC RE-610 and CHEELOX B-13 are more than doubly efficient when used together. Their synergistic effect dramatically improves control over iron and other metallic ions in the caustic-boil and bleaching stages of continuous cotton processing. Mill tests credit the "Gafac-Cheelox" team with reducing rejects owing to iron-speck holes by more than 50% on large runs.

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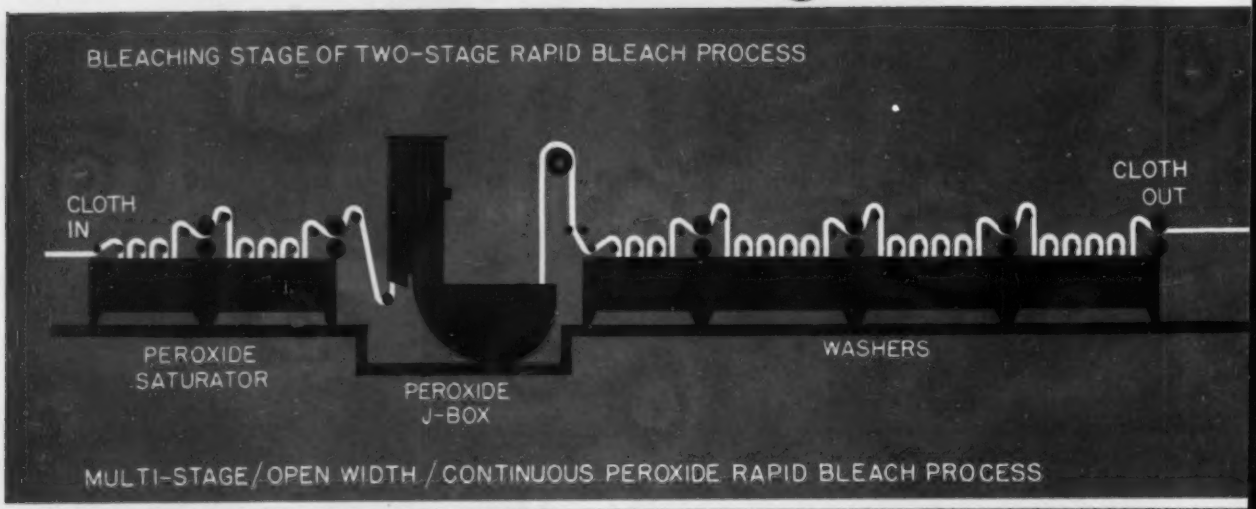

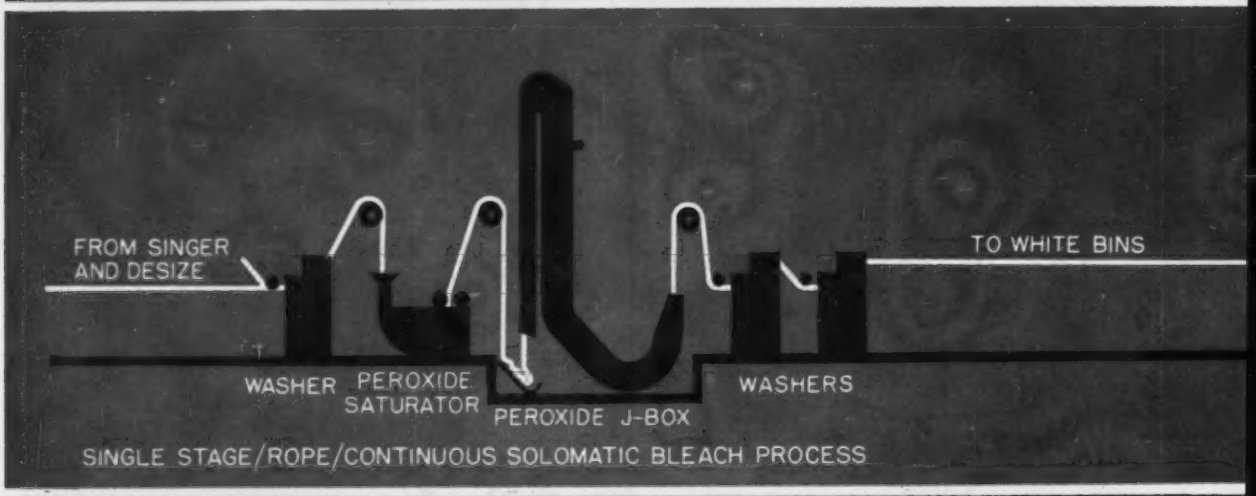

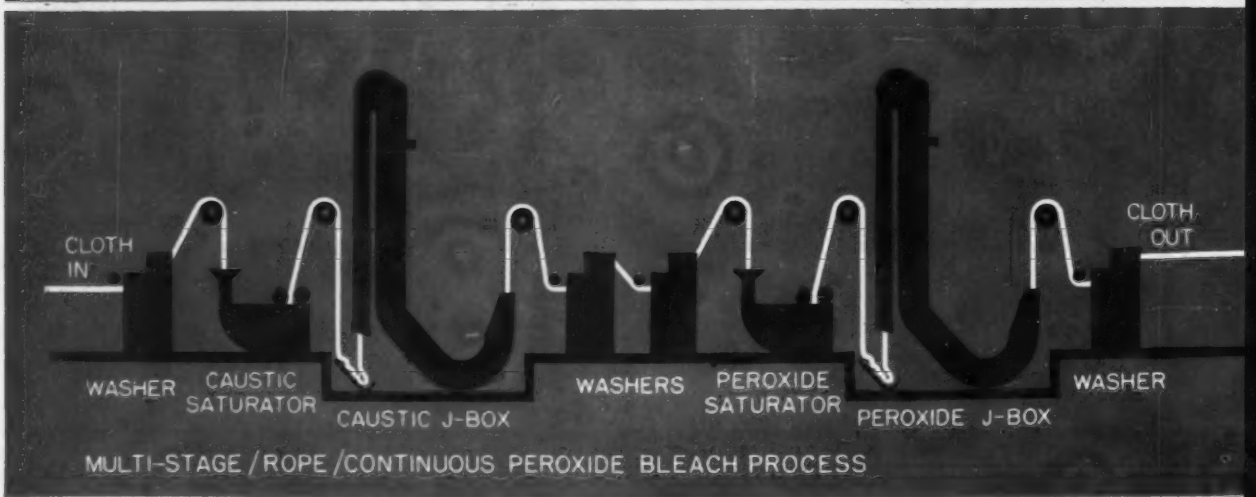

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TABLE 11. Samples for Tests of Various Additives

Sample No.	35 cc Solution	Cure min—°F
56	X	20—238
57	X	20—286
58	Y	20—237
59	Y	20—288
60	Z	20—238
61	Z	20—289
62	AA	20—289
63	AB	20—288
64	AC	20—289
65	AC	20—289
66	AD	20—288
67	AD	10—288
68	AF	10—292
69	AF	20—289
70	AG	10—292
71	AG	20—291
72	AH	10—290
73	AH	20—290
74	*	No cure
75	AI	20—291
76	AI	10—238
77	AJ	20—292
78	AK	20—291
79	AK	10—240
80	AL	20—289
81	AM	15—291
82	AM	15—291
83	AN	15—292
84	AN	15—294
85	AJ	20—293

*Blank

age of 5.0%. The actual felting shrinkage in Samples 71, 68, and 45 (45 is not shown on the photograph) is therefore 1.5%. This amount amply justifies the term "shrinkproof."

As for fabric hand, all of the successful procedures have a tendency, in varying degrees, to increase the "bite" of the whipcord. However, if the harshening is objectionable, it can be successfully removed by washing the fabric after curing. In all probability this would be a desired sequence in most mills.

The effect on color will depend on the individual dyes used. With most chrome, metalized, or neutrals, the effect does not appear to be serious, nor is the lightfastness of those tested impaired.

It is felt that the methods and procedures described have definitely established at the laboratory level a practical method for control of felting shrinkage. The

Continued on page 142

TABLE 12. Samples Treated With Various Additives—Shrinkage After Repeated Wash Tests

Sample		Wash No. 1 Loss in.	Wash No. 1 Area Shrinkage %	Wash No. 2 Loss in.	Wash No. 2 Area Shrinkage %	Wash No. 3 Loss in.	Wash No. 3 Area Shrinkage %	Wash No. 4 Loss in.	Wash No. 4 Area Shrinkage %
56	W	0.188	5.28	—	—	—	—	—	—
	F	0.125		—		—		—	
58	W	0.188	5.28	—	—	—	—	—	—
	F	0.125		—		—		—	
59	W	0.188	5.28	—	—	—	—	—	—
	F	0.125		—		—		—	
61	W	0.250	4.17	—	—	—	—	—	—
	F	0		—		—		—	
62	W	0.188	5.28	—	—	—	—	—	—
	F	0.125		—		—		—	
63	W	0.125	4.17	—	—	—	—	—	—
	F	0		—		—		—	
65	W	0.250	6.43	—	—	—	—	—	—
	F	0.125		—		—		—	
66	W	0.250	7.23	—	—	—	—	—	—
	F	0.188		—		—		—	
68	W	0.250	5.14	0.250	6.43	0.250	6.43	0.250	6.43
	F	0.062		0.125		0.125		0.125	
71	W	0.188	4.17	0.250	7.23	0.250	7.23	0.250	7.23
	F	0.062		0.188		0.125		0.125	
72	W	0.188	4.17	0.250	5.14	0.312	7.23	—	—
	F	0.062		0.062		0.125		—	
74	W	0.625	19.70	0.750	25.30	0.750	27.10	0.813	29.70
	F	0.625		0.875		1.000		1.125	
75	W	0.125	4.17	0.188	5.28	0.188	5.28	—	—
	F	0.125		0.125		0.125		—	
76	W	0.188	7.23	0.250	10.30	—	—	—	—
	F	0.250		0.375		—		—	
77	W	0.188	5.28	0.250	7.23	—	—	—	—
	F	0.125		0.188		—		—	
78	W	0.188	5.28	0.188	6.39	0.188	6.39	0.188	6.39
	F	0.125		0.188		0.188		0.188	
79	W	0.125	4.17	0.188	5.28	0.188	6.39	0.188	6.39
	F	0.125		0.125		0.188		0.188	
80	W	0.188	4.17	0.250	7.23	0.250	7.23	0.250	7.23
	F	0.062		0.188		0.188		0.188	
81	W	0.250	5.14	0.312	8.06	—	—	—	—
	F	0.062		0.188		—		—	
83	W	0.188	5.28	0.250	6.43	—	—	—	—
	F	0.125		0.125		—		—	
84	W	0.188	5.28	0.188	5.28	—	—	—	—
	F	0.125		0.125		—		—	
85	W	0.125	4.17	0.188	5.28	0.188	5.28	0.188	5.28
	F	0.125		0.125		0.125		0.125	

Chemists-Colorists Met in Buffalo

AATCC discussed resin finishing, stream pollution, saving caustic soda, and high-temperature dyeing

This year's Olney Medal Award of the AATCC was presented to *Fred Fortess* of Celanese Fibers Co., shown here delivering his acceptance address.

Staff report

ONLY A comparative handful of mill men traveled all the way to Buffalo for the AATCC's 1961 convention, but those who did heard an excellent technical program. Speakers from Canada and the United States discussed original research work in fibers and chemicals, as well as practical problems in dyeing and finishing.

A highlight of the meeting, apart from the technical program, was a vote by AATCC's Council to rescind its previous decision to move Association headquarters from Lowell, Mass., to New York City (see "AATCC Makes a Wrong Move," TI for September 1961, page 27). The Council didn't pick an alternate location, but directed each of the Association's four regional vice-presidents to appoint a member to a committee which will consider all possibilities, including remaining at Lowell. The committee will make its report at a Council meeting on January 26.

Next year's convention, sponsored by AATCC's Southeastern Section, will be held in Atlanta, November 14-16, with TEXTILE INDUSTRIES' vice-president and business manager, *John C. Cook*, serving as general chairman.

Technical papers from the Buffalo convention of greatest interest to mill men are briefed on the following pages.

How to Save Caustic Soda at the Bleachery

Cotton bleacheries are still wasting thousands of tons of caustic soda despite the fact that many benefits can be derived from re-utilization. Where possibility of re-utilization exists, the return on capital generally exceeds 50%. In the case of one large southern bleachery, a $200,000 investment was retired in less than one year with realization of such benefits as increased yardage return and alleviation of stream and atmosphere pollution.

These statements of fact served as introduction to a paper, "Economical Utilization of Caustic Soda in Cotton Bleacheries," which was presented by *W. R. Steele*, technical service manager of Allied Chemical's Solvay Process Division. Mr. Steele then outlined the steps and measures that can be taken to achieve the goal set up in the title of his paper.

The first step calls for a survey of a plant's caustic-consuming processes. Its purpose is to determine for a representative base period the individual quantities of caustic consumed, available for recovery, collected, wasted, re-conditioned, and re-used. The accumulated accounting, operating, and test data are used for calculation of a materials balance, and the results pro-rated to an annual basis.

To increase both the quantity and concentration of recovered caustic liquor in mercerization, perfected washing techniques can be put into use, thus allowing re-usage of the maximum amount "as is" to minimize reconditioning costs. Some desirable washing principles:

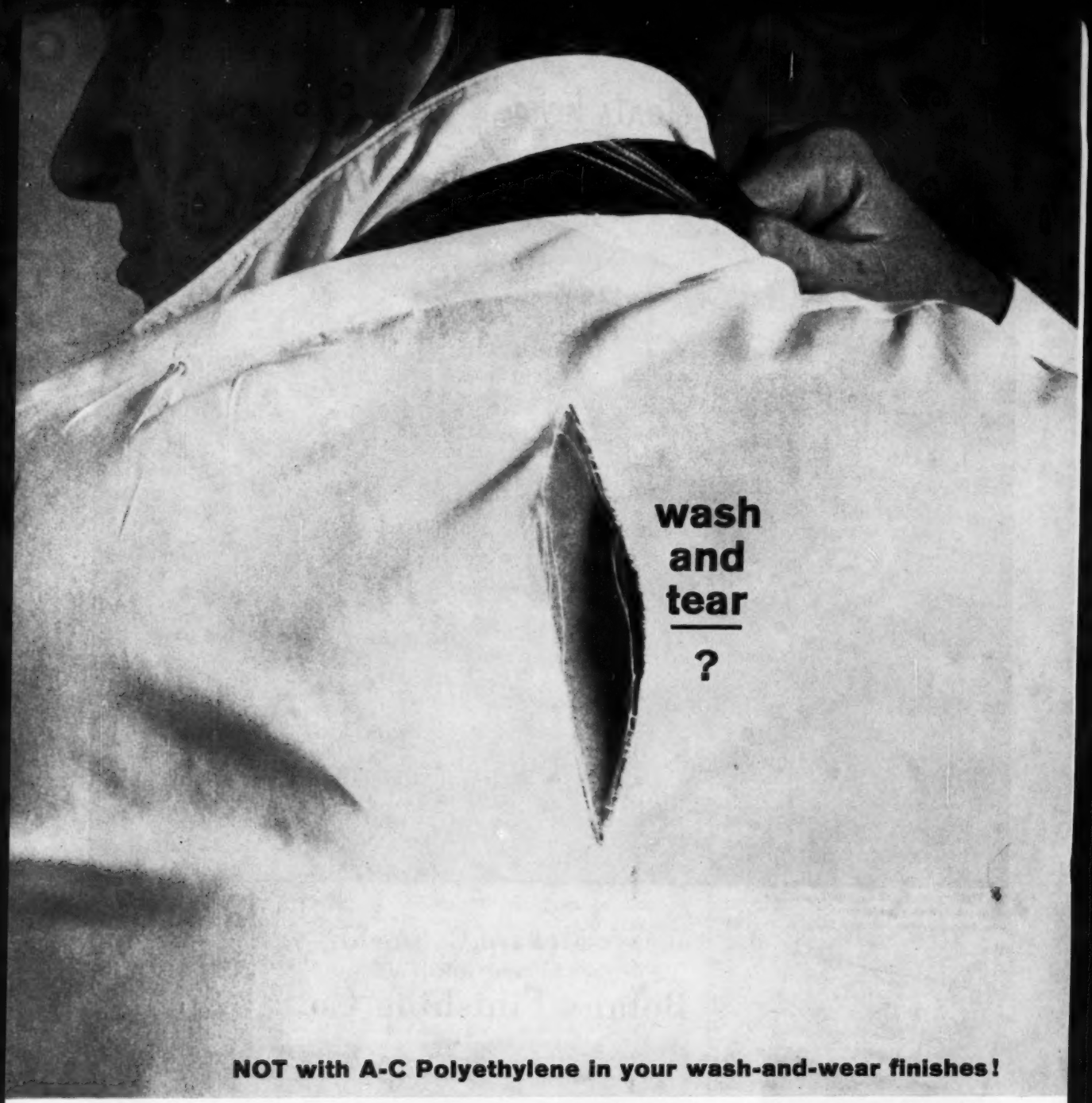
1. Wash in the shortest space at the delivery end of the tenter frame.

2. Provide a minimum of four washing stations each including weir applicator, vacuum extractor, liquor collector, intra- and inter-station liquor circulators, and liquor heater.

3. Apply liquor uniformly by keeping applicator level and its dam smooth and free from lint. A distance of 5 to 6 feet is recommended between liquor application to cloth and its extraction.

4. Maintain wash liquor temperature above 185 F. Application of steam to cloth just prior to washing is advisable.

5. Counter-flow wash liquor in-



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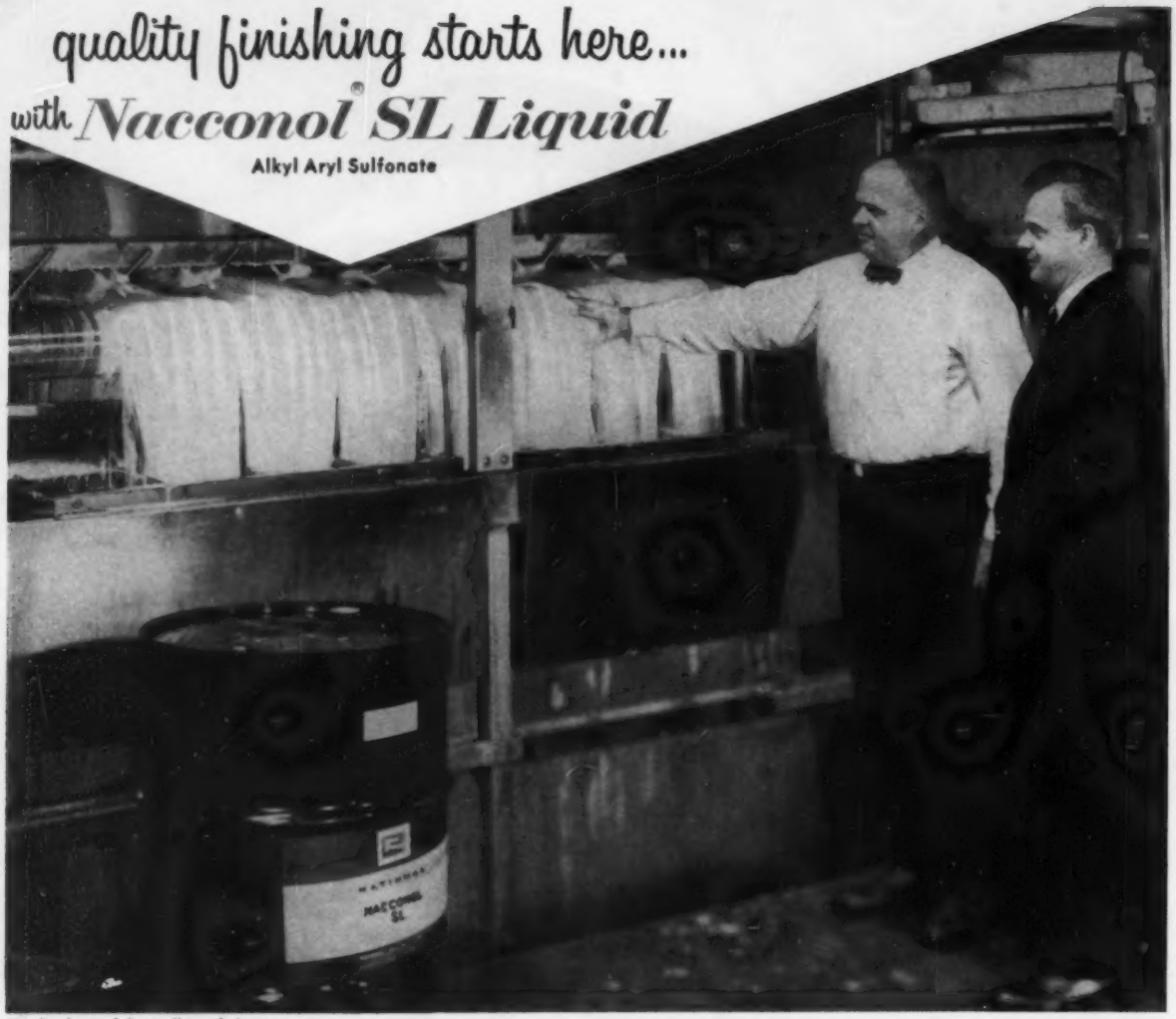

Mr. Stoehr explains to Kenneth Jones, National Aniline representative, why Botany prefers Nacconol SL.

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ter-stations at a rate which will send effluent to recovery at 5 to 6% caustic soda concentration.

6. Apply vacuum at the suction lance extractors at 4″-10″ mercury.

7. Minimize air leaks by keeping vacuum pumps well packed with graphite-impregnated asbestos or the like, and connecting vacuum pump and suction lances with steel pipe and ball joints.

Evaporation is considered if the following condition is met: After the maximum amount of caustic soda "as is" is re-used, the remaining quantity (averaging 3% by weight in strength) must reach approximately 400 tons annually on a dry basis. The process of evaporation can involve several steps. It consists of evaporation, which concentrates both the caustic soda and the impurities. After post-evaporation cooling, filtration follows. Then, if the residual soluble impurity concentration is high, further purification is necessary. This is best achieved by dialysis. To neutralize the weak caustic soda that is discharged from the process and thus prevent it from polluting streams, flue gas may be utilized.

Although evaporation can be a lengthy process, Mr. Steele concluded that it is economically feasible, yielding annual caustic savings of as high as 50%.

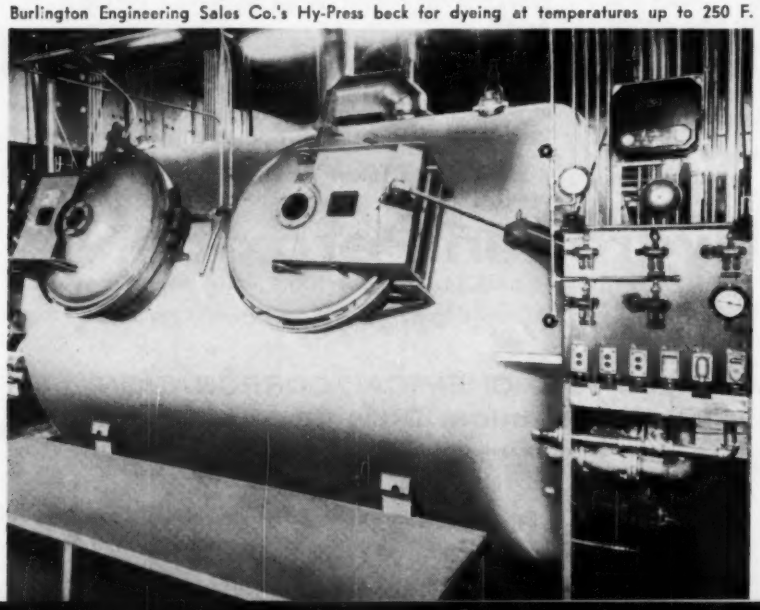
High-Pressure Beck Dyeing

To facilitate dyeing of synthetic fabrics and blends, the Burlington Engineering Sales Co. undertook to study the possibility of pressurizing the dye beck. After extensive practical trials, in which fiber producers and dyeing plants took part, a low-pressure dyeing beck was designed and built. It was engineered to operate at a temperature of 218 F and a pressure of 28 oz. After its successful introduction in early 1959, the company later that year developed a high-pressure machine, capable of reaching a temperature of 250 F and a pressure of 20 lb.

Details of these two dyeing machines, and results of their operation in the plant, were disclosed for the first time in a paper, "A New Concept in Dyeing Synthetics and Natural Fibers and Blends in the Burlington Engineering Twin Pressure Becks," by *Charles B. Ordway*, of Burlington Engineering Sales.

The low-pressure beck, Mr. Ordway pointed out, has advantages in dyeing woolen fabrics since it promotes level dyeing, and complete chromability of the heavy chrome-dyed shades on 100% woolens and woolen blends. It would also be useful, he said, in reworking difficult-to-dye ray-

Burlington Engineering Sales Co.'s Hy-Press beck for dyeing at temperatures up to 250 F.



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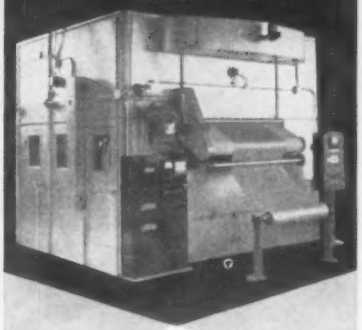

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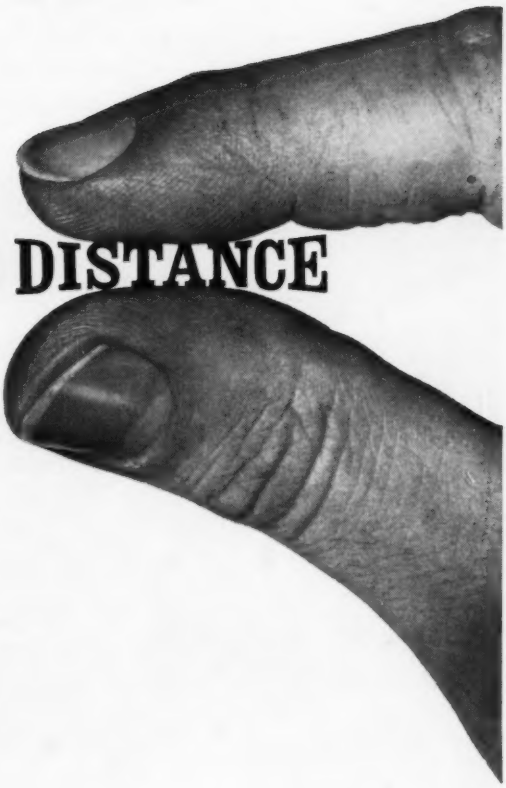

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on fabrics and blends since the 218 F temperature aids many fast-to-light direct dyes in leveling. The low-pressure machine would also be advantageous in dyeing fabrics of acrylic fibers.

The high-pressure dye beck, however, offers greater flexibility because of its higher operating temperature and pressure. Mr. Ordway pointed out that it can be utilized the year round: to dye polyester/worsteds and blends during one season, and 100% woolens during the other.

Polyester/wool, polyester/synthetic blends, and 100% polyester fabrics in the 6-16 oz range can be dyed more economically in the high pressure beck than in pressure beam dyeing equipment. They require, of course, proper preparation and a heat-setting. Similar formulations of selected disperse acetate dyes and assistants give satisfactory results. 1½ to 2% formaldehyde owg has proved of value in preserving the wool during the high-temperature dyeing period. When dyeing medium to heavy shades in the pressurized beck, cleaner shades are obtained, which are "freer of acetate dye filtration," a condition that can occur on the pressure beam dyeing machine and requires cleaning up on a standard dyeing beck.

The high-pressure dye beck can also be used to dye various constructions of wool fabrics. It may also be used to rehandle streaked polyester/wool blends and other polyester blends, which have been dyed on standard enclosed becks in the presence of carrier.

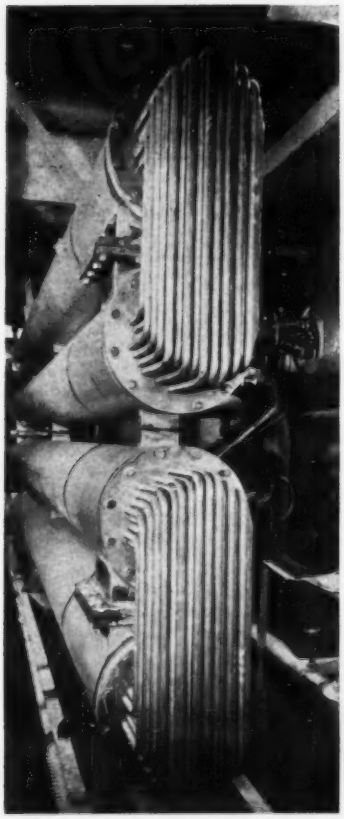
In summarizing, Mr. Ordway emphasized that dyeing under pressure produced clarity of shade with improved penetration and levelness, in a shorter dyeing cycle. Dyeing in high-pressure becks, he said, requires 15 to 30% less time when processing polyester fabrics and blends. On other fabrics and blends, the time cycle is comparable on both the low- and high-pressure becks.

Other advantages cited for both machines were safety and ease of operation and reduction in steam consumption.

Progress in Pollution Abatement

R. Hobart Souther, research consultant, Greensboro, N.C., presented a paper, "Water Conservation and Pollution Abatement," in which he described a new bio-aeration process for treating textile wastes. The process was developed for Haw River, N.C., and adapted by Aileen, Burlington, Cone, Canton, and Chicopee plants. Results indicate that many and varied textile wastes can be treated satisfactorily and economically by this process.

Construction and maintenance costs of the process range from about 1/6 to ½ that of conventional trickling filter and activated sludge or combined processes, he stated. Starch desizing wastes can be treated in plant with construction cost less than $25 per lb of



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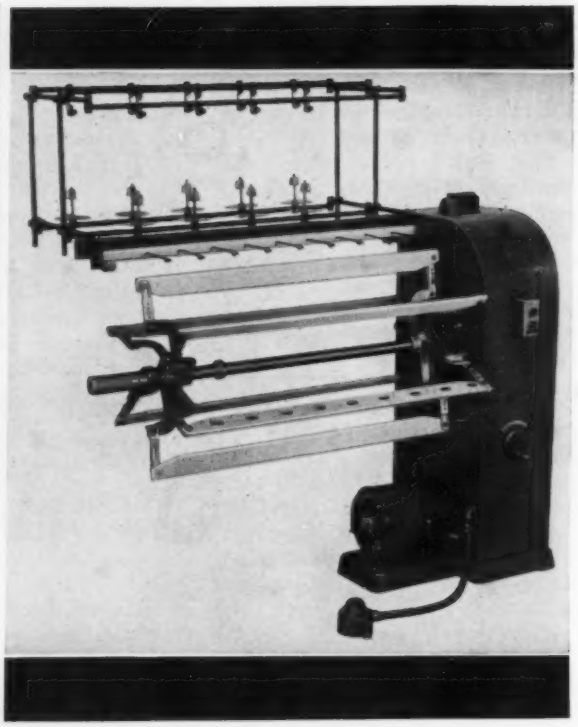

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BOD per day, compared with $100 per lb BOD per day in a conventional plant. An aerobic digestion of starch desizing waste is more expensive and usually effluent requires additional treatment.

Thus far, experimental data indicate that starch desizing waste may be satisfactorily loaded into plant designed for bio-aeration treatment of finishing dye wastes without increasing the plant size or treatment costs over starch substitutes.

Chlorine-Resistant Nitrogenous Resin

Research work at the Southern Regional Research Laboratory, directed toward developing improved resins, has led to a study of the reaction product of two molar equivalents of formaldehyde and a monocarbamate, typically ethyl carbamate (urethane). The product formed in this reaction is presumably ethyl N, N-dimethylolcarbamate (DMC). It can be applied by the usual pad, dry, and cure procedure to produce wrinkle resistance of good durability to home and commercial laundering.

Details and results of applying DMC (and some of its modifications) to cotton fabrics were reported on in a paper, "A Carbamate Finish for Wrinkle-Resistant and Wash-and-Wear Cottons," which was authored by *Richard L. Arceneaux, J. G. Frick, Jr., J. David Reid,* and *Gloria A. Gautreaux,* of SRRL, New Orleans, La. The cost of DMC, it was reported, should be within the present range of commonly used commercial crosslinking agents, since ethyl carbamate is an inexpensive product of the reaction of ethyl alcohol and urea.

In a series of tests, 80 x 80 cotton fabric samples were impregnated at various concentrations of DMC, and the effect of varying catalyst, catalyst concentration, and curing conditions noted. One series of tests was conducted to show more clearly the effects of various catalysts on fabric properties, when used at three concentration levels in a 10% solution of DMC. Results of

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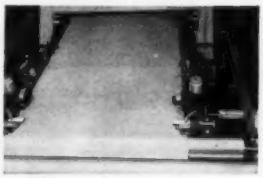
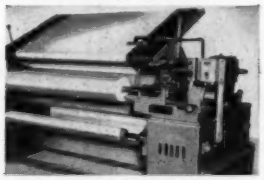


Medium-duty double unit with air sensing, positioning rails on tenter frame for higher speeds.

Photoelectric reflected light head senses cloth position by following printed line or selvage.



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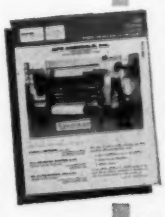

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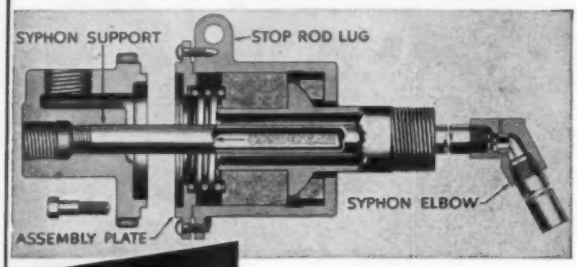

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Effect of Catalyst and Catalyst Concentration on Properties of Fabric Treated With 10% DMC

Property	Launderings	Catalyst (% in Solution)									
		$MgCl_2.6H_2O$			$Zn(NO_3)_2.6H_2O$			$RNH_2.HCl$[1]			Un-treated fabric
		1.5%	3.0%	4.5%	0.5%	0.75%	1.0%	0.5%	1.0%	1.5%	DMEU[2]
Nitrogen Content (%)	None	0.56	0.59	0.62	0.62	0.61	0.61	0.56	0.60	0.57	1.21	—
	20 Home	0.55	0.54	0.55	0.53	0.54	0.55	0.53	0.54	0.52	1.15	—
	5 AATCC	0.52	0.56	0.56	0.53	0.57	0.58	0.56	0.54	0.55	1.12	—
Crease Recovery Angle (W+F deg.)	None	261	262	276	263	274	272	264	268	274	299	196
	20 Home	244	248	265	248	246	258	250	261	261	261	166
	5 AATCC	259	256	277	244	267	277	263	273	278	274	195
Tearing Strength (W+F, gr.)	None	1037	953	900	847	787	754	1000	847	820	813	1867
	20 Home	760	727	680	740	667	600	760	660	607	600	1107
	5 AATCC	986	940	873	1077	866	827	967	853	793	820	1673
Breaking Strength (W, lbs.)	None	38.2	35.2	33.7	33.6	33.1	27.2	34.0	33.4	31.5	30.7	43.8
	20 Home	38.1	35.4	33.8	36.3	32.1	29.1	37.6	32.0	34.0	30.7	45.0
	5 AATCC	36.8	32.2	32.0	32.1	26.8	27.8	33.8	27.5	28.1	30.0	47.8
% Original Strength Retained in Scorch Test	None	97	92	100	96	84	100	91	91	99	—	—
	20 Home	85	94	93	97	95	100	93	96	96	—	—
	5 AATCC	94	94	100	93	100	89	85	100	93	—	—

[1]Monsanto Catalyst AC
[2]8% DMEU and 0.6% $Zn(NO_3)_2.6H_2O$ in treating solution

these tests are shown in the accompanying table, which reveals the properties of fabrics treated with DMC and the properties of fabric treated with dimethylol ethylene urea.

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For boiling or bleaching all types of cotton goods from gauze to heavy twills, these new ALLEN stainless steel Package Design kiers offer unusual opportunities for more profitable operation to small and medium sized bleacheries and those doing fine fabrics. Large plants, too, find them extremely useful for short runs and special fabrics. In many cases, they are replacing continuous bleaching operations for certain types of goods. Allen Package Design Kiers feature:

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New Dyes and Chemicals

New Reactive. A new dye in the Cibacron series of fiber reactives available from Ciba Co. is Brilliant Red BD, especially developed for printing cellulosic fibers (although it is also suitable for dyeing, with pastel shades dischargeable to a white). It produces reds of extreme color brilliance, or bright scarlets in combination with Cibacron yellows. Fabrics colored with it are suitable for rubberizing, pvc coating, and resin finishing. *(L-1)*

Stable Naphthol AS. The nine Naphthol AS products of Carbic-Hoechst Corp. are now available in special "LL" grades; the protective colloids normally used to stabilize Naphthol AS impregnation liquors are not needed with these grades. Dissolving is carried out by stirring the Naphthol into dilute, hot caustic soda solution; no spirit or highly sulfonated oils are necessary. Foaming is also greatly reduced. *(L-3)*

Direct Dye. Lumicrease Dark Brown 3LB Pat. is the newest addition to the Sandoz group of extremely lightfast direct dyes. It is suitable as the main element for brown shades, or as a shading color in dyeing cellulosic fibers. Working properties include low salt sensitivity, no senstitivity to hard water, level dyeing, and lightfastness unaffected by resin finishing. *(L-5)*

Self-Curing Latex. A self-curing latex compound for carpet backing, said to require half the amount of thickener material used in standard compounds, has been developed by the Naugatuck Chemical Division, U. S. Rubber Co. "Lotol L-4634-D" is also reported to have good heat and light-aging characteristics. *(L-4)*

Dyes for Spandex. The new "Spanyl" series of dyes now being produced by Althouse Chemical Co. are claimed to be the first successful dyes for spandex elastic fabrics. They are applied by standard procedures, and can be union-dyed with nylon. The series includes Yellow 2GS, Orange 2RS, Maroon TRS, Red 2BNS, Blue 3RDS, and Grey NS. *(L-6)*

Inks for Screen Printing. PS Series Plastisol Ink, recently introduced by Naz-Dar Co., is designed to apply an opaque, elastic coating to light or dark fabrics. Black, white, and four colors are available. *(L-2)*

Thermosetting Resin. Protection of the original lightfastness rating of fiber reactive dyes is a major advantage claimed for Hylite, a new thermosetting resin available from Proctor Chemical Co., Inc. *(L-10)*

◆ *For more data on any of these dyes and chemicals, write supplier or use postage-free card on page 167, listing in space provided the code (L-1, L-2, etc.) in parentheses at end of descriptions.*

No-shrink wool *(from page 129)*

best method for control of relaxation shrinkage is to prevent its formation, by proper cloth construction and machine operation. However, if relaxation shrinkage is inherent in the cloth, the most feasible approach to its control is through the bonding of the individual threads as they exist in the cloth. But any material accomplishing this type of set would stiffen the fabric beyond the point of acceptance in the apparel field.

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Trademarks

Versamid—General Mills Chemical Division
Epon—Shell Chemical Corp.
Tween—Atlas Powder Co.
Cyanatex—American Cyanamid Co.
Mod-Epox—Monsanto Chemical Co.
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FIGURE 1. Data from *Table 9.*

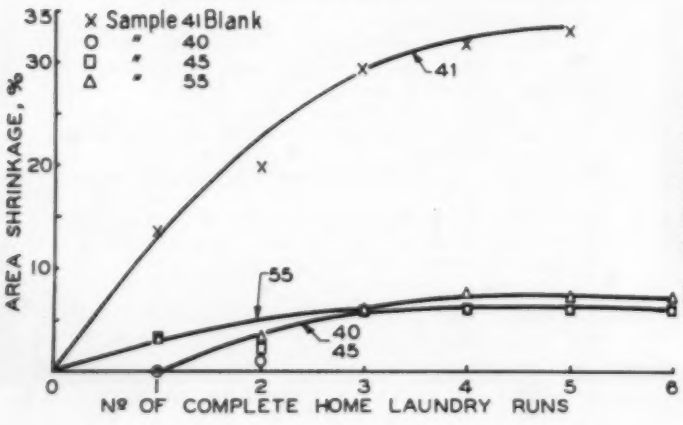
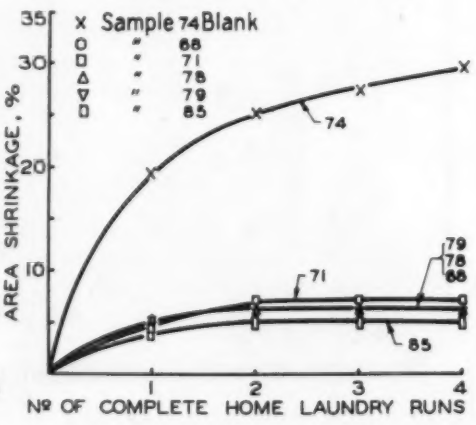
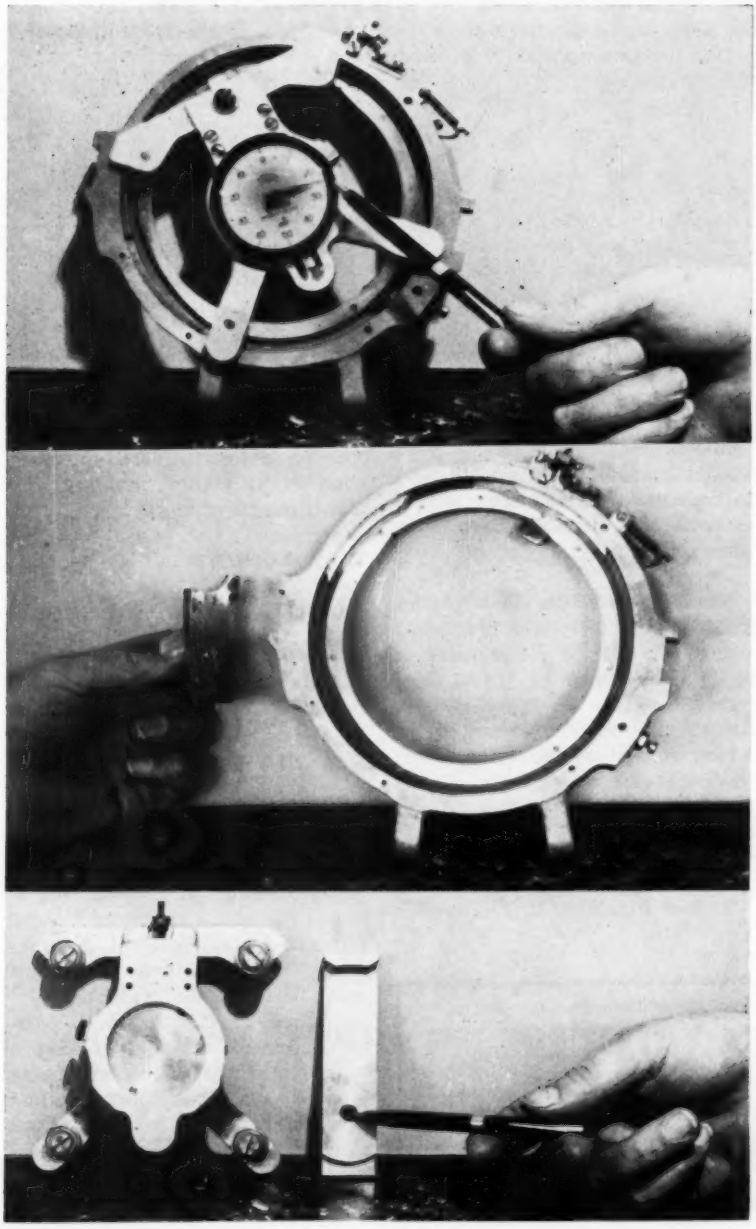


FIGURE 2. Data from *Table 12.*



KNITTING SECTION



Better way to gauge a sinker cam

Staff prepared Exclusive

DIAL indicator-type sinker cam gauges have been a rarity until recently. The only ones in use were handmade, but now such gauges may be bought on a commercial basis.

It is desirable and necessary to gauge sinker cams on ladies seamless knitting machines to control quality. Due to the large number of courses per inch, the courses must be uniform to produce a quality fabric.

Setting the sinker cams is very important, because the sinker over which the stitch is drawn is so thin it has a knife-like edge. The yarn from which the fabric is made is usually 15 denier, is quite

← TOP: Dial in place at deepest point of the sinker cam. CENTER: Single-feed sinker cap and old-style gauge that relies somewhat on sense of feel. BOTTOM: Underside of gauge, which is fitted with roller bearing contact points and jeweled indicator reading to 1/1000 of an inch.

small in diameter. And if the sinkers are not properly set, they will either cut or chafe the yarn. This possibility becomes apparent in view of the 400-475 sinkers contained in a 3¾" diameter machine.

The three most important factors in setting are:

(1) Makeup (extra yarn for starting new stocking).

(2) Transfer (loops off dial bits to cylinder needles to form the inturned welt).

(3) Knitting heel and toe sections.

In heel and toe sections, sinker cams must be set at even depth on both sides to prevent alternate tight and loose courses, often called stitch unevenness.

The old way or most commonly used method of making these adjustments depended upon hand tools, gauges, and trial and error. Also, the sense of touch or feel, employed to ascertain the correct amount of friction on the old type of gauge, raised the error by introducing more "human factor."

Old style gauging was done more by sense of feel or touch than by actual measurement, and setting by old style gauges was affected by operator fatigue. Usually, only one or two men in the entire plant were allowed to use the old type manual gauge. Any fixer can use the dial indicator gauge to set cams without supervision.

Due to the normal wear and sensitiveness of sinker cams on seamless machines, they must be kept in good condition, and cams must be removed from caps to do this. Subsequently, they must be put back into the cap properly. The sinker cam gauge is the correct tool to assure that this is done accurately.

The sinker cam gauge also measures wear of sinker cap and sinker head to tell which is worn and how much. An attachment is provided to set the indicator to zero with true center of sinker head.

Using the dial indicator, the deepest point of sinker cam should measure 0.125" while knitting the heel and toe section.

Technical developments *(from page 27)*

fast-drying qualities, wrinkle-resistance, and washability.

Silk Treatment. A liquid synthetic wax treatment for silk yarns developed by Scalamandré Silks is said to soften the fiber and make it resistant to reed marks and other weaving defects. Also claimed are increased tensile strength, and renewable water repellency that lasts through six dry cleanings.

FABRICS AND PRODUCTS

New Nonwovens. Du Pont Co. has filed patent application for "spunbonded" materials, some of which are said to be similar in appearance to conventional nonwoven fabrics. They are reported to be produced "through integration with synthetic-fiber manufacturing," and a number of fiber-forming polymers can be used as starting points. Initial use in interlinings and as base materials for coating and impregnation is expected.

Teflon Felt. American Felt Co. has added a Teflon TFE-fluorocarbon felt to its "Feutron" line of synthetic-fiber felts. The felt is available in widths up to 72", lengths up to 60 yd. Uses are seen in industrial applications where extreme conditions are met, as in some types of filtration.

Double-Faced Pile. Double-faced knitted pile fabrics for reversible outerwear can be made using a method developed by Union Carbide Chemicals Co. Process is a brushing or napping technique by which fibers are pulled through the back of a conventional sliver-knit single-faced pile. Method can be used by any pile knitting mill with nappers.

Tufted Blankets. E. T. Barwick Mills now have tufted blankets of Acrilan in production.

Nylon-Cotton Hose. A Pennsylvania inventor has patented a stocking with alternate courses of nylon and a natural fiber yarn. The latter has a diameter about twice that of the nylon, so only these natural yarns come in contact with the skin. Combination is claimed to give increased moisture absorbency while retaining the high strength of the nylon.

TEST METHODS

Israeli Abrasion Tester. It is reported that the Sivim abrasion tester, developed at the Jerusalem Institute for Fibers and Forest Products, will be marketed by an American company. The device is said to be designed to permit objective evaluation of warp sizes and yarn abrasion resistance.

Crease-Recovery Tester. At a recent meeting in Holland, representatives of the Northern Ireland Linen Industry Research Association described a new test apparatus based on the "clenched fist" technique. The tester uses a circular specimen which is folded a number of times before being pierced by two long darning needles, mounted in a V-shaped slot, and subjected to a 5-lb load before removal for evaluation of the degree of creasing.

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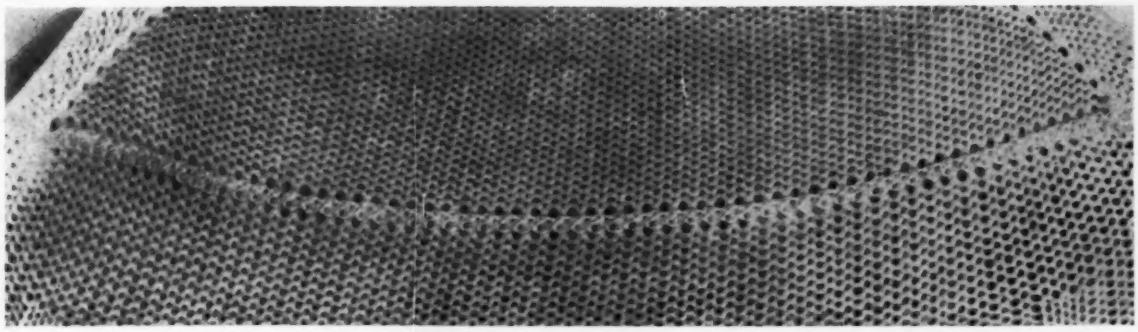


as a mill man sees it

Exclusive

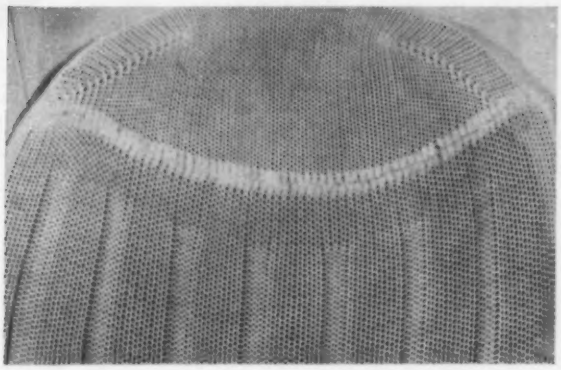
HOSIERY BUYERS' comments on "seaming" the toes of circular knit hosiery, as reported recently in a number of trade publications, indicate that none of them knows that what he has been told or thinks is seaming is not really seaming as we in the hosiery making business think of it. It is sewing! And the sewing of hosiery toes is not new, as any old-timer will tell you. It was done long ago, but not nearly so well as it is being done now.

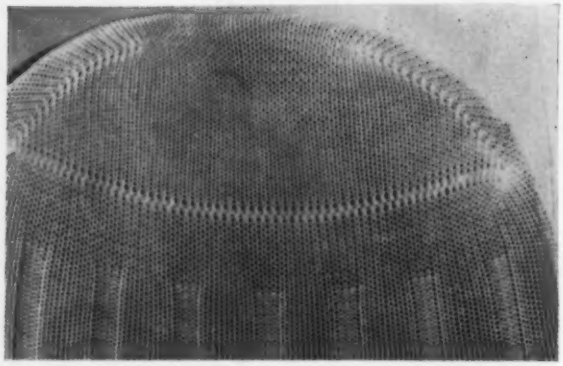
When the sewed-toe goods again began to appear on the market a couple of years ago, everyone was talking about *sewed toes* as compared to looped. But suddenly there was a switch to the term *seamed toes.* This sounds so much better and actually the closure is much better than the sewed toe of the past. But I must stick to my guns that this new sewed toe is not a seamed toe pure and simple. The surplus fabric is cut off by a trimmer on the overseaming or overedging machine used today for the toe closing operation; whereas in a conventional seaming operation there is no surplus fabric to cut off.

A few years ago when circular knit ladies' hose were seamed up the back to resemble full-fashioned stockings, the fabric was not cut—just sewed or seamed if you prefer to call it that. When the flat blanks of full-fashioned hose are seamed from welt to toe, the fabric is not cut and there are no raw yarn ends protruding; instead, two neat and clean selvages are placed side by side and the seaming machine seams (or sews) them together without trimming off any surplus fabric.

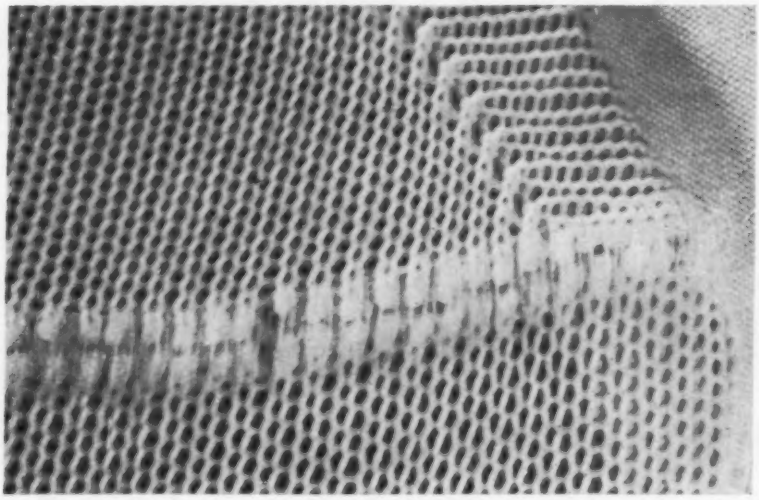
The way hosiery toes are sewed today is similar to the methods previously used for welting the

". . . there will always be looping, and seaming is here to stay if buyers are willing to gamble and if consumers do not balk"





How the seamed sock (left) and looped sock look to the consumer when he puts them on. These are right side views of the same socks pictured inside out on page 145. Note at the extreme right in the photo of the seamed sock what appears to be a hole in the seam and the dog ear where the finishing corner did not come out even.



The hole and dog ear in the seamed sock above are clearly visible in this enlarged view. Note also the horizontal line in the center of the seam. This is where the yarns have been cut by the trimmer on the overseaming or overedging machine.

lower grades of ladies' hose or attaching the rib tops (plain or fancy) to the legs. But the equipment now available for the toe closing operation produces a much flatter, more durable, and stronger seam.

Do Toe Closures Wear Out? A lot has been said about abrasion tests. Who ever heard of holes being worn through a looper line by abrasion? Everyone in the hosiery making game knows that the looping yarns used are as good as the knitting yarns and oftentimes better. Looping machines will not run well on weak yarns, since too much tension on the yarn is required by the machines for successful operation.

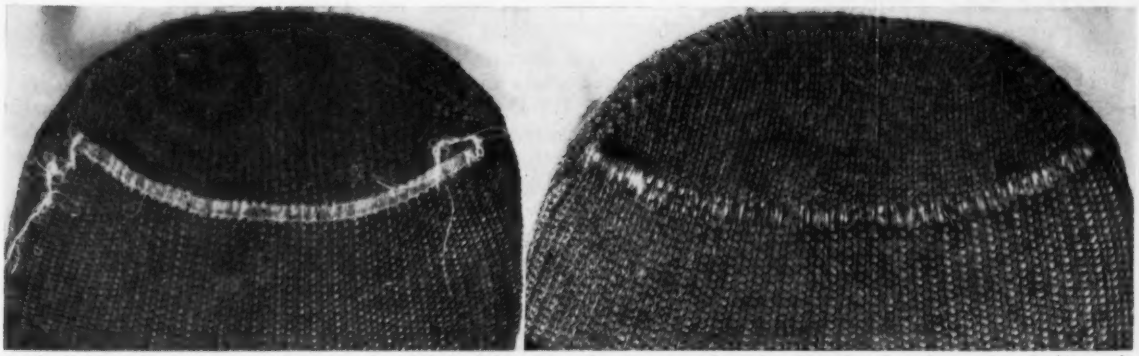
Disadvantages of Seaming. Some buyers are correct in stating that seaming is a good substitute for looping in stretch goods and that it appears to be better adapted here than in heavier type men's hosiery. Quite a few seem to think that the consumer can't tell the difference between seamed and looped hose. Did any of these gentlemen ever take a good look at both corners of a seamed toe wrong side out and see the dog ears where the finishing corner did not come out even? Of course, this can happen in looping also if knitting machines are not set up properly as to needles or if a careless looper operator improperly places the fabric on the looper points.

For a defect which consumers will surely see, take a seamed toe and stretch it crosswise, then lengthwise, and work it a little and note how the raw edges pop out. Now take the looped sock of the same type and give it the same treatment or even worse. Get rough with it. Pull h-a-r-d both ways. Then look at it carefully. It still looks the same—neat, even, and clean. Yes, even a dumb consumer will see the difference sooner or later.

Nevertheless, a lot of mills on high-class goods are presently seaming all seconds and thirds, and many mills making cheaper goods are seaming most of their production. So, as it looks today, there *will always be looping, and seaming is here to stay if buyers are willing to gamble and if consumers do not balk.* But, as for the opinion that seaming is as good or better than looping in appearance, comfort, or wearing quality, that is a lot of boloney, and the slightly spoiled kind at that.

Why Mills Consider Seaming. The mills are interested in seaming in place of looping only as a means of reducing their costs. By costs we don't mean only the per dozen rate paid for looping. Perhaps the greater cost is for training looper operators, and this has been exaggerated in many cases.

For many years the mills have left the impression that training loopers was the most difficult of all training jobs in the mill. Today there are many cases where a knitter has much more to learn than a looper operator. Knitting on some of today's complicated machines requires many talents, whereas looping has not changed in 50 years. All the looper needs



Inside (left) and outside views of a seamed sock knitted from an oxford yarn. Note that white thread was used for the seam. This sock was a second, so the seaming machine operator did not take the time to replace the white thread used on a lot of white socks with a thread the same color as the sock. Obviously, this would have been desirable.

to learn is to put the points in the right stitches and turn corners properly. Much of the success in training loopers depends on the ability to recognize the type of person who will make a good looper operator. Let's not get the impression that God let only a few people be born with the ability, deftness, sitting capacity, temperament, good vision, and stamina (among other things) which are necessary to make a good looper.

It also costs money to train girls to seam goods, and they too will make bad corners—perhaps more often than looper learners will—because they do not follow a looper line stitch for stitch and because of the high operating speed of the machines. Seaming machines cost money, and they need repairs as loopers do. So the saving in seaming over looping may not be as great as most buyers seem to believe.

See how the raw ends of the cut yarn protrude in this enlarged view of a portion of the seam in the right photo above. This was caused by pulling the sock in all directions. According to the veteran knitting mill operating executive who wrote this article, this is what happens to seamed socks after they are worn and laundered a few times.

Why Buyers Consider Seamed Goods. Buyers are interested in seamed goods only because they expect to get them at a lower price and charge the consumer the same price they do for looped goods.

One man said the mill saves 12¢ per dozen by seaming goods in place of looping. "Why doesn't the mill pass this saving, or a large part of it, on to the buyer?" he asked. We suggest that he buy a flock of knitting machines, seamers (he better have a few loopers, just in case), and all the rest of the equipment needed for a mill to produce the high quality goods he has been wanting (as a buyer). It won't take long for him to find out why the mills need any savings they can get. We believe this buyer will be glad to be able to buy goods for $5.00 a dozen and sell them for $12.00 a dozen, once he has had a taste of today's hosiery making problems which he has helped to make more complicated in the past few years.

Governing Factors. There are but two factors involved in the looping versus seaming problem, and these will govern the final outcome to a great extent. These factors, as the writer sees it, are FEAR and MONEY.

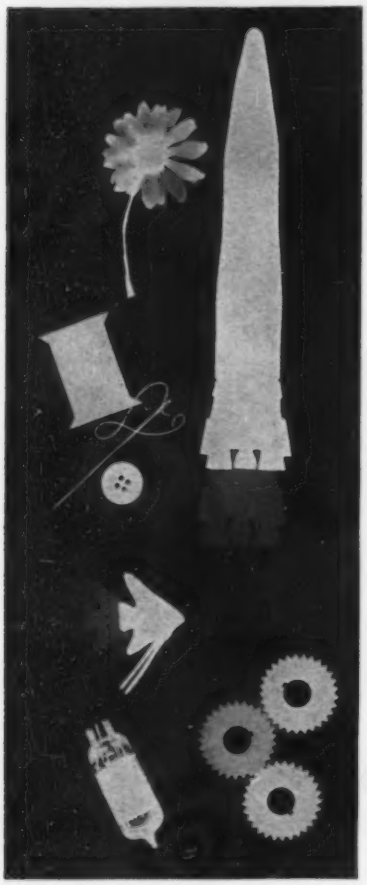
Both the buyers and the mills are more or less equally involved. Both know that when they leave the well trodden path of looping there is a definite gamble involved. Neither can afford to put goods on a counter which may be harder to sell, and this is especially true of goods in higher price brackets. If complaints come in, bad news travels fast with a devastating effect on the sale of the product.

If seamed goods were actually better than looped goods there would be no problem. But buyers and mill men know the truth and *fear* keeps them saying "it's too early, to tell," "we are watching the situation," "this is a progressive step," etc.

Anyone who has had a little experience with hosiery buyers knows that they are no rank amateurs.

If they were, they would not have the mills in the position many are in today—that is, where the buyer is king, the mill falls in line

WHAT DO THESE ITEMS HAVE IN COMMON?



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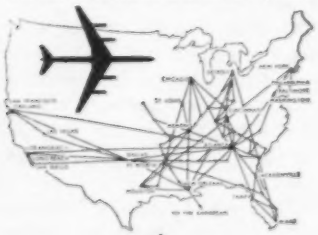

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or loses the business. Buyers, on the other hand, would be very foolish to accept seamed goods in favor of looped goods and take all the gamble at little or no extra profit. Here is where *money* comes in, and money is the main reason for making, buying, and selling hosiery.

Some extra profit will have to be made by the mills and the buyers, and the profit had better be worthwhile and assured before the mills release their looper operators and put their looping machines in crates to gather dust. Neither the buyers nor the mills can afford to make a mistake.

Bear in mind also that extra profit by the mill will not begin immediately. New machines must be paid for, operators must be trained, spoiled goods must be paid for, etc. All these things must be taken into consideration since they help to determine how much money can be made and how fast without fear of losing money, losing business, losing customers, or losing the friendship and good will of a buyer who has kept the mill humming for a long time.

One good effect of the coming of seamed toes, and one on which it would be very difficult to place a net value, is that looper operators now know that toes can be closed satisfactorily by means other than conventional looping*. This is bound to have some effect on the over-all looping problem which every mill must face. Much will depend on how it is handled within the mill. All new methods of doing things, especially radical departures from tried and proved methods, have to be evaluated as to their money-making or time-and-labor-saving possibilities.

Fear has a stabilizing effect on the desire to gamble, especially when the stakes are high. Take a good look at the accompanying illustrations, Mr. Mill Man, Mr.

*In addition to the sewing machines available for closing hosiery toes, there is an attachment for loopers which eliminates the necessity for perfect arrangement of stitches on looper dial points.

1960 man-made fiber production record high

■ COMPILATION of world production of man-made fibers shows that during 1960 a record total of 7,551,000,000 pounds were turned out in thirty-nine countries on five continents, according to *Textile Organon*, statistical bulletin of Textile Economics Bureau, Inc. Output last year exceeded the previous record in 1959 by 525,000,000 pounds or 7½ per cent.

World production of rayon and acetate last year aggregated 5,748,000,000 pounds, a gain of 3½ per cent compared to the previous year. Non-cellulosic fiber output amounted to 1,564,000,000 pounds, a gain of 23 per cent. Textile glass fiber production at 239,000,000 pounds was up 26½ per cent.

Non-Cellulosic Fibers. In a special analysis of world non-cellulosic fiber production and capacity by type of fiber, the *Organon* reports that the 1960 total of 1,564,000,000 pounds was subdivided into 916,000,000 pounds of filament yarns and monofilaments and 648,000,000 pounds of staple and tow. The filament yarn and monofilament total, in turn, comprised 780,000,000 pounds of nylon, 78,000,000 pounds of polyester, and 58,000,000 pounds of "other fibers" including saran, olefin, etc. The noted non-cellulosic staple and tow total of 648,000,000 pounds included 285,000,000 pounds of acrylic, 96,000,000 pounds of nylon, 173,000,000 pounds of polyester, and 94,000,000 pounds of "other" staple and tow.

Current world capacity to produce acrylic staple is 442,000,000 pounds and is expected to increase to 630,000,000 pounds by the end of 1962. For nylon, the current capacity is 994,000,000 pounds of filament yarn and 119,000,000 pounds of staple and should aggregate 1,520,000,000 pounds by December 1962. Polyester filament yarn capacity is now at 290,000,000 pounds and staple at 400,000,000 pounds, with the total projected December 1962 capacity placed at 550,000,000 pounds. For the "Other" noncellulosic fibers except textile glass, current capacity is 123,000,000 pounds of filament and 140,000,000 pounds of staple and tow; the total by the end of 1962 should reach 340,000,000 pounds.

Textile glass fiber production is still largely concentrated in the U.S.

For further information use Handy Return Card, Page 167

Buyer, Mr. Consumer! At $1.00 a pair which would you buy, seamed toes or looped toes?

IN CLOSING let me say that no matter which method of toe closing turns out to be most desirable to all concerned, the writer will not be richer or poorer. To knock seaming or any other method of toe closing has not been the purpose of this article. We are interested in facts, interested in helping to produce high-class hosiery, interested in all phases of hosiery making, and ways and means to improve any of the various operations. We also believe in hanging onto tried and proved methods until a better and more profitable way is developed.

There is room in the hosiery market for various kinds of goods, in different price brackets. There is room for progress—something sorely needed in the circular knitting field.

It is high time that the leaders in the several branches of the circular knitting industry get together and set some standards of general practice, decide what should be done, and then do it. If practices detrimental to getting on a sounder basis continue or grow worse, then the whole circular knitting industry will lose much of the solid ground on which it has stood for many years.

A good example of failing to take some drastic action to prevent a highly respected, well established, and profitable industry from falling flat is the present condition of the women's full-fashioned hosiery business. The seamless ladies' hose business was at one time much worse off than full-fashioned business, and now the reverse is true.

Top notch circular mill owners and managers are talking automation, spending money for cost reducing equipment, increasing the size of grey stock, keeping tremendous amounts of goods packed and ready for immediate shipment, all of which is well and good. But when will they get their heads together, take a good look at the profit sheet, and have enough intestinal fortitude to demand higher prices? This action is long overdue!

perfect fold, after fold, after fold

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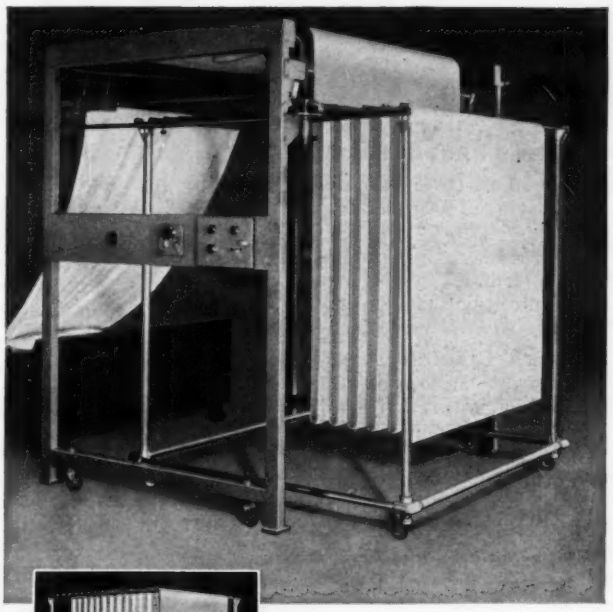

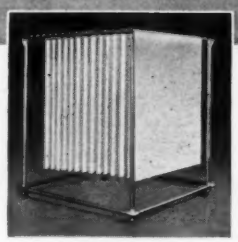

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HOW OTHERS MANAGE

Ways to spin from 60s, 64s, and 70s wool — A reply

(*This is a reply to* CONTRIBUTOR No. 1339, *who, in the October issue, asked for advice in spinning from* 60s, 64s, *and* 70s *wool. We welcome further comment. — The Editors*)

There are so many variables involved in the question that it is most difficult to be specific without a great deal more data. He did indicate the qualities of the wool were in the fine range, but we can only assume what the staple lengths might be and what the coefficient of staple variation is; further, the quality of the original wool sorting itself could be a factor, as well as the origin of the wool, etc. However, we will try to provide some data that might be of value. First, regarding the weight of sliver which should be used to feed the roving frame, we suggest a possible range of from 40 grains per yard to 60. This would be determined more by the final yarn count to be spun than perhaps anything else, because it is generally found that there are maximum drafts on the roving and spinning frames that are possible and practical, and which, therefore, would tend to indicate what the sliver weight should be.

We generally recommend a maximum roving draft of 16-18, although we have known instances of higher drafts than these. For optimum results, however, we would suggest not exceeding 18, and better a draft of about 15. Of course, if the yarn is to be a two-ply weaving yarn then it could very well be that a higher draft, with perhaps a slightly less uniform single yarn, could not be distinguished after twisting and in the finished cloth from another single yarn which is more uniform in itself because of having been made with lower drafts. As for the oil and moisture content, that is also a rather broad situation. Basically, the Model F5 roving frame is slightly more flexible with regard to oil content. It can handle satisfactorily normal Bradford combed top with normal oil content, but on the double apron system, which is the FA-12F, then

Harry Kitzmann of 6961 Argyle St., Vancouver 15, B.C., won the kink contest that ended August 15. His idea, to appear soon, changes C & K shuttle checks to cut spring failure. Contest rules are on page 153.

Mr. Kitzmann

the oil content should be reduced for best operation. In this respect we prefer a maximum of 2% oil.

We assume the fine grades mentioned in your question are French combed with probably about 1% oil content. This is quite satisfactory but a slightly higher percentage would tend to be helpful to reduce static if that is a problem. Today, however, there are oils available, used to make up the emulsion, which have anti-static properties built into them which minimizes considerably this problem.

We would hesitate to offer any particular recommendations regarding moisture content. Properly conditioned tops with normal regain of about 13% are satisfactory. Of course, dried out top will definitely develop static problems and interfere with proper drafting.

It is rather strange that at times the back draft on these drafting systems produces varied results. On these frames, of course, which have a single drafting zone, this back draft is basically a tension draft and, therefore, is generally run in a very low range. Normally, figured drafts of about 1.25 are used, but there are cases where an increase in this draft to 1.50, and even somewhat higher, have proved better.

Again this ties in with the characteristics of the sliver being fed into the frame, and the ratch that is established as being best for that specific stock. Naturally, this back draft is important, but our basic rule would be to keep it as low as possible and yet maintain a fair tension and proper straightness and parallelization of the fibers as they are run under the middle roll unit.

SACO-LOWELL SHOPS

Tape helps reduce finished cloth inventory

Many finishing plants sell cloth to large department and chain stores, put up under the customer's label. It has long been a problem to try and anticipate the need for imprinted cloth reels due to varying sales as well as maintain a stock of a particular style number under the customer's labels. In many cases, it is necessary to rewind cloth from one reel to a reel

bearing the customer's label.

This problem has been eliminated by winding the cloth on blank reels, using a plant code for each style. As the orders are received and processed, printed tape bearing the customer's brand name is placed on the ends of the reel and the proper customer code number for the particular style is affixed by means of a rubber stamp.

The printed tape shown in the illustration is made by Minnesota Mining & Manufacturing Co.

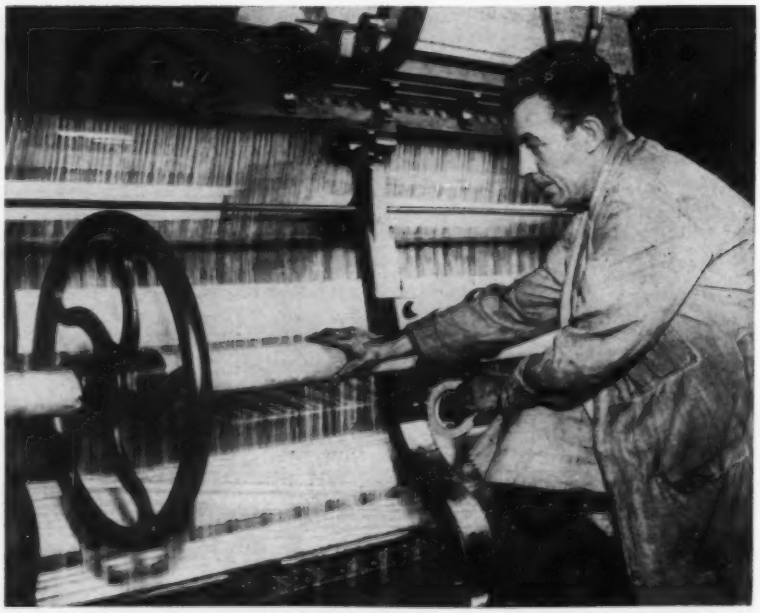
Paper tube removes another hazard to knitting

Protecting the operator from the drive shaft of a lace machine was a problem facing the management of Nalpac Co., a Canadian manufacturer of fine laces.

The exposed drive shaft on the lace machines had been a hazard. This shaft had accidently caught and twisted the loose clothing of an operator, resulting in his personal injury. The solution proved to be a paper convolute tube manufactured by Sonoco Products Company.

After a careful study by Sonoco's sales representative and officials of Nalpac, a fibre sleeve 3″ in diameter (inside) and slit full length, was selected. It was necessary for this tube to be ¼″ larger in diameter than the shaft.

The tube was supplied in master lengths of 8 feet and then cut to



size on the job. The tubes were then fitted into sections between the hand wheels. As a result of being slit, the tube can be slipped over the shaft and then taped. The tubes are reusable and easily removed.

Now if a person leans on the shaft, the tube stands still and he doesn't get hurt.

A way to cut into sample weaving costs

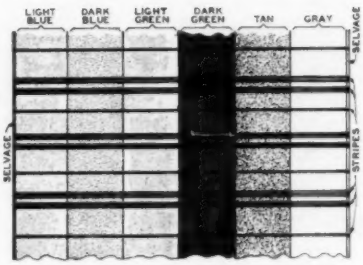
THE EDITORS:

Under present-day conditions of merchandising the product of a fancy goods mill, there is a tremendous demand for samples of new styles and patterns as well as for different color arrangements of established patterns. These requirements work hardships even on a mill equipped with a special sample department, and they are an extremely difficult problem for a mill whose samples are made on a production loom.

In many cases a potential customer will wish to see a wide variety of color combinations of the same design before making his selection and placing an order. One short-cut method of making these sample swatches, especially suited to but not limited to fabrics with warp stripe designs, is as outlined below.

Basically, this method is to make a sample warp in which, in the finished piece, the warp becomes filling and vice versa.

In other words, the design is



woven sideways; the warp stripes in the finished sample being woven across the goods by the filling. Sample swatches are then cut from this finished piece and given a quarter turn, which will show the swatch as having vertical, or warp, stripes.

By making a sample warp with several sections in the width, each section dressed with a different color of yarn, the sample will appear as the same design on the several different ground colors. Designs having a solid color warp, ornamented with a fancy weave stripe on a ground weave base can be made in this manner on a single-shuttle loom equipped with a dobby head, the warp being drawn in to suit the ground and weave stripe used.

Warp stripes in color require a box loom which, in the case of fabrics with a single end of one color in a stripe, would necessarily have to be a pick-and-pick (4x4) loom unless a floating pick is introduced at this point.

The diagram shows a sample warp made in this manner. It will be noted that this sample warp consists of six sections of warp, each warp section being of a different color. The cross stripes can be either weave stripes or color stripes as outlined above. Naturally if color stripes are used the number of colors that can be introduced will be subject to the limitations of the box loom used.

It will be noted that in a sample warp made according to this diagram, if the finished goods are 54″ wide, each sample swatch when it is cut from one piece and given a quarter turn will be 9″ long. There is no limit on the width of each swatch, this being governed by the amount of filling woven for each color combination.

On such a sample warp a practically unlimited number of stripe designs can be woven, with an indefinite number of color combinations for each design. Each design will require a separate dobby chain, box chain, or both, as may be called for by the designs to be woven.

Such a sample warp should be

Win $100—Get busy with those ideas—Win $100

This contest ends next month.

Every kink, short-cut, time-saver, or quality improvement suggestion entered in the contest will be paid for at current space rates immediately upon acceptance, and the $100 award will be made to the winner as soon as all entries are judged.

The contest rules are simple:

► All contributions must be postmarked not later than midnight, December 15, 1961.

► No limit to the number of entries an individual may submit in any one contest.

► All entries paid for upon acceptance — no waiting. Extra payment for photographs that are usable. Extra consideration is also given kinks accompanied by legible pencil sketches or drawings.

► Entries must not have been published previously and must not be submitted to any other publication.

► Send your contest entry to: The Editors, TEXTILE INDUSTRIES, 1760 Peachtree Rd., NW, Atlanta 9, Georgia.

laid out so that its sley is equal to the picks-per-inch of the fabric being sampled, and as a corollary, its picks-per-inch will be equivalent to the sley of the fabric. This may rule out making samples in this manner of certain fabrics having an extremely high sley as its weave as the high pickage required may be impractical.

But for very many fancy fabrics this method of weaving sample swatches sideways can be an extremely simple and low-cost way of producing a large number of small sample swatches in a relatively short time.

The designer must always use care in laying out the weaves used in samples made in this manner, always keeping in mind that he is working on a fabric that has to be given a quarter-turn to be seen in its proper perspective.

For instance, plain weave is the same either way. But if the fabric being designed calls for, say, warp float stripes on a plain weave ground, it should be so designed that these warp floats become filling floats on a plain weave ground in the sample which will show these stripes as a warp float when given a quarter turn.

Twill weave will also have to be reversed in direction, a fabric with a twill line running from lower left to upper right should be so designed that the twill will weave from lower right to upper left in the loom.

Much of course depends on the demands made by the salesmen and the stylist, but an ingenious designer can, in many cases, produce a large number of sample swatches in this manner from one sample warp, at a much higher rate of production at a considerably lower cost than if they were made in the conventional way.

This method is not limited to stripes only but in the hands of a capable designer, plaids, checks, and even jacquard designs may also make use of the advantages of weaving swatches sideways.

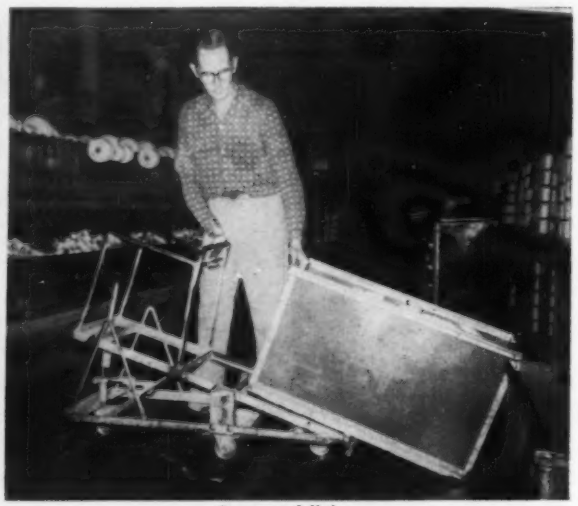
Shop-built elevator trucks lowers yarn handling costs

THE EDITORS:

This elevator truck takes much strain off the bobbin hauler's back. It is made of 1½" x 1½" angle iron, and ⅝" rod, and is mounted on ball-bearing casters. The front roll is made of 1" pipe fitted with ball bearings.

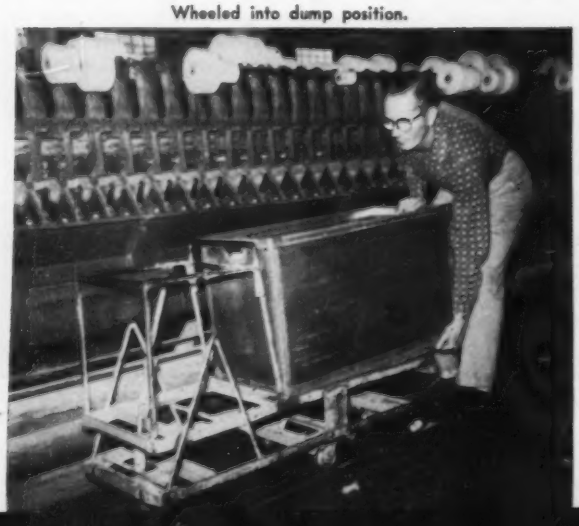
For a number of years before

Ramp up for loading.

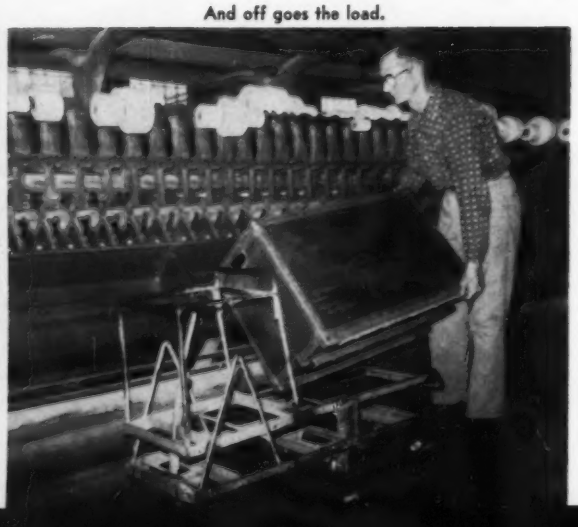


On goes full box.

Wheeled into dump position.



And off goes the load.



we made it, we used two men on each shift to dump bobbins in our spooling room. Now one man on each shift dumps all the bobbins.

The bobbin hauler pulls the box on over the front roll and bears down on the back of the truck. The latch will automatically catch and hold the box in an elevated position high enough for the lip of the box to catch over the edge of the spooler tray. Then he only has to swing the box up as if it were on hinges instead of lifting it.

CONTRIBUTOR NO. 1346

Boom-and-sling gear saves warehouse space

Carpet rolls 15 feet long are handled quickly and safely with a special boom-and-sling fork truck attachment at Greenpoint Terminal Warehouse, Brooklyn.

The new technique has reduced handling time while increasing usable carpet storage area 66 per cent at this bonded public warehouse, the largest handler of imported carpets in the New York area.

Before mechanical handling was introduced, four men were needed to handle carpets. Rolls were lifted from storage piles or from trucks by hand and placed on two small four-wheel dollies, one at each end of the roll. Size of rolls made them awkward to handle, and it was impractical to stack them manually more than three high in the warehouse.

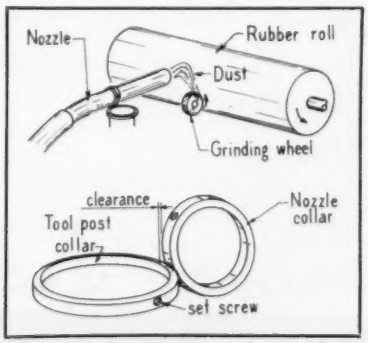
Now, a web strap is quickly fitted around the carpet roll and then attached to a hook on the Clark fork truck's boom. Boom can reach inside a delivery van to load or unload carpets. Using the fork truck, carpets are easily stacked five high to conserve storage space.

Bags dust from roll grinding

THE EDITORS:

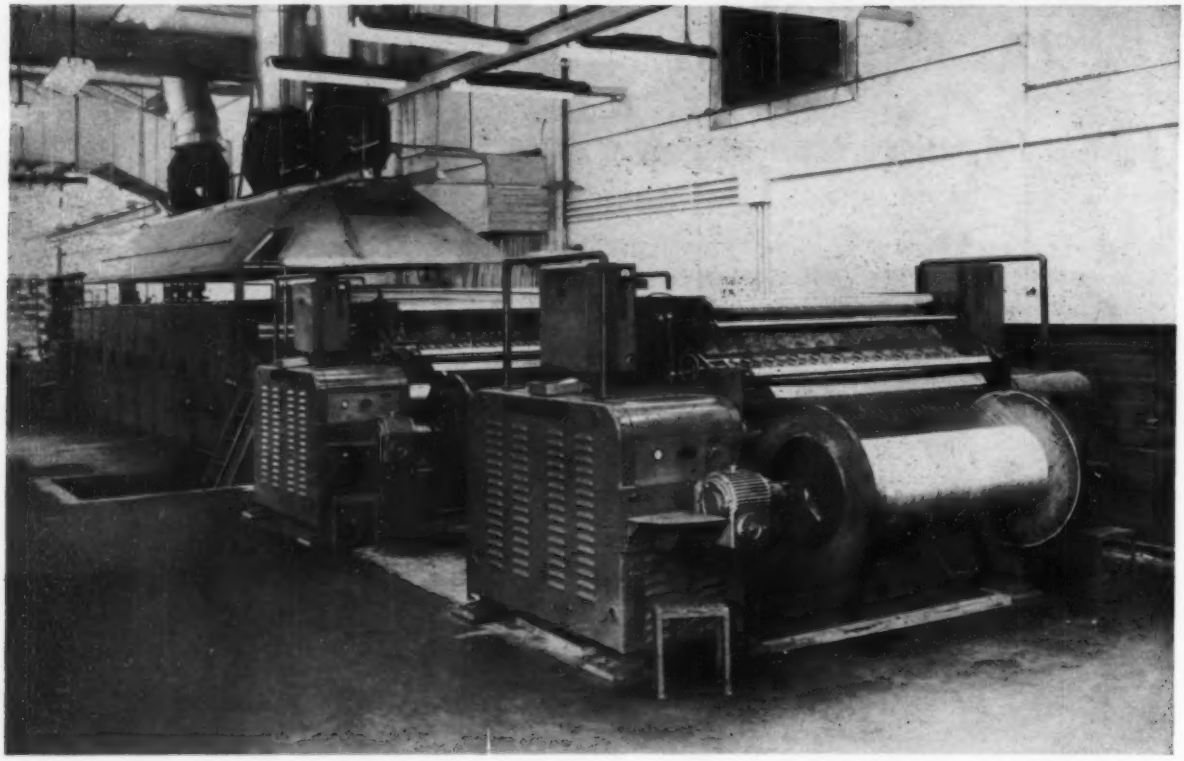
This is a method of mounting a vacuum cleaner nozzle to the tool post of a lathe to carry away the dust made in grinding rubber rolls. Two collars (see the illustration) enable the mechanic to position the metal vacuum-hose nozzle above the "bite" of the grinder and rubber rolls. It traverses with the lathe carriage. The vacuum cleaner is a familiar bullet-shaped unit sold for household use and equipped with a 76″ hose.

CONTRIBUTOR NO. 1326



Schematic of nozzle mounted to pick up and bag most of the refuse from roll grinding. Roll and grinder diameters will determine exact nozzle position.

ANOTHER RECENT COCKER GH SLASHER INSTALLATION



17 Cylinder Tire Cord Slasher

This tire cord slasher demonstrates Cocker's ability to engineer and build superb slashers for any type yarn and for any application. This extra heavy duty machine was designed to stretch heavy denier yarns up to 15%. It has 17 dry cans and 4 section beam take-up units and is fed from a Cocker magazine cone creel to provide continuous operation. Speeds up to 170 YPM.

All Cocker Slashers have valuable features not found on any other sizing equipment. Cocker's simple and efficient Torque Tube Drive*, individually removable cylinders, timing belt drive, air motor loading of size box top rolls, and many other exclusive Cocker features bring you "TOMORROW'S SLASHING TODAY".

We will be glad to send you our new illustrated catalog.

*Pat. Pending

Cocker Laboratory Slashers duplicate mill slashing operations.

COCKER MACHINE & FOUNDRY COMPANY

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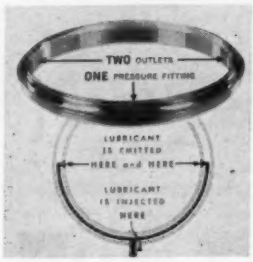
For further information use Handy Return Card, Page 167

NEW PRODUCT PARADE

Spinning-twisting ring for pressure lubrication

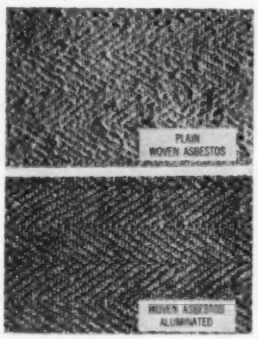


A new ring for woolen spinning frames and twisters on which worsted, carpet, asbestos, and similar yarns are processed is designed to assure adequate lubrication for metal or nylon travelers when used with Alemite or Lincoln centralized pressure systems. Designated the "Dualube" ring, it provides multiple distribution of grease or oil around the circumference of the ring. Lubricant is led from the single pressure intake fitting through ducts wholly inside the ring which terminate in outlets around the circumference.

Whitinsville Spinning Ring Co., Whitinsville, Mass.

Do you want more data? Write ◂ or use card on page 167; list M-101

Makes fabrics stand temperatures to 2500 F



A process which impregnates fabrics, leather, paper, and plastics with aluminum has been developed. Called Alumination, it adds heat resistance up to 2500 F, depending on the base material, while retaining texture and pliability of treated material. Independent laboratory tests show that the process increases reflectivity of woven asbestos 20 times. The material is made tougher with higher tensile strength and abrasion resistance.

The full range of application of aluminum-impregnated fabrics is unlimited—from space suits to heat reflective gloves, from auto headliners to insulated draperies, from high temperature filters (gas or liquid) to refrigeration and duct insulation. Also, color coding and decorating applications are possible, because Alumination is available in a wide range of colors.

The process may be applied to fabrics on one side or both sides, and depth of coating is closely controlled. Any degree of porosity may be maintained to conform to individual requirements.

Thermo-Chem Corp., 4 Noeland Ave., Penndel, Pa.

Do you want more data? Write ◂ or use card on page 167; list M-102

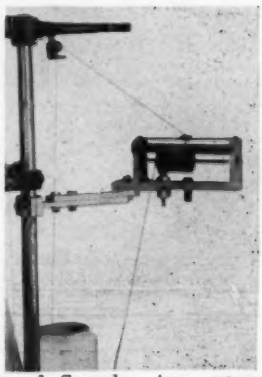
Fast way to test cotton for cavitoma

Now available in a convenient aerosol can is a solution which when sprayed on cotton shows quickly whether or not cavitoma is present. Hence, the product may be carried in the pocket for field, warehouse, or mill testing of cottons. Called "Cavitomic" Cotton Test Spray, it provides the answer in 10 to 60 seconds. Cost per test is less than 3 cents.

General Aerosols, Inc., 104 Mill St., Shelton, Conn.

Do you want more data? Write ◂ or use card on page 167; list M-103

Improves elastic yarn feeding to knitgoods



Spantrol, a new device to control the tensioning of synthetic or natural elastic yarn while being knit on circular knitting machines, eliminates distortion in hosiery and knitting machine breakdown caused by improper feeding of the yarn. A further advantage is that it enables manufacturers to run single covered and uncovered elastic yarn. The device can be adapted to conventional covered rubber yarn, covered Spandex core yarn such as Vyrene, uncovered Spandex type yarn

Claims made in all of these announcements of new developments are of necessity based upon information furnished by the respective suppliers.—The Editors.

Cone surfaces...
why different types?

In all yarn packaging on cones, tension at the traverse extremes tends to pull the yarn toward the cone center. Only a surface which resists this force can provide the foundation for a satisfactory package. Sonoco offers a number of cone surfaces designed to meet the varied characteristics of natural or synthetic yarns. They have been developed over the years through research and actual production.

Sonoco cone surfaces may be smooth, high mark, low mark, Velvet (ground) or Unitex (flocked).

High Mark Surface

Low Mark Surface

Velvet Surface

Unitex Surface

Velvet and Unitex surfaces can be applied over the entire length of the cone or as bands at critical points. Textures of Velvet and Unitex surfacing range from fine to coarse and selection of the proper degree depends on twist, denier and number of filaments of the yarn to be wound. The Unitex surface has also proven to be an effective barrier against absorption of coning oil by the paper. All surfaces can be scored, embossed or grooved. Sonoco sales engineers are qualified to help in the selection of the type best suited to your needs.

Sonoco offers a background of over 60 years in solving yarn winding and delivery problems. *Only Sonoco,* in this field, provides continuous research and product development with integrated manufacturing facilities. *Let Sonoco experience help you!*

Scored Surfaces

Grooved Surfaces

SONOCO

Products for Textiles

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For further information use Handy Return Card, Page 167

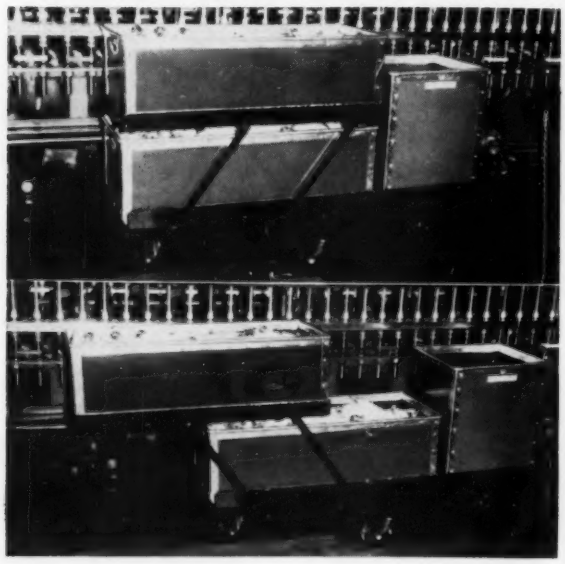
such as Lycra, or single covered rubber yarn.

Adaptable to all seamless knitting machines, Spantrol consists of a U-bracket with a specially designed drum equipped with an adjustable brake mechanism to retard or increase the flow of yarn. Made by Morpul Mfg. Co., it is sold by

H. E. Crawford Co., Kernersville, N. C.

Do you want more data? Write ◆ or use card on page 167; list M-104

Flip-top truck speeds in-plant handling



A two-level "flip-top" mill truck speeds doffing and in-plant handling of filling, knit goods, garments, spools, and other textile materials. The truck, which carries three vulcanized receptacles, provides access to all simultaneously. This is especially convenient in aisle work where the receptacles are accessible to employees working on either side of the truck.

A flat-bed, four-wheel chassis carries the receptacles, two of which are rectangular. One rests on the bed of the truck and the second is held in place on a metal frame positioned above the first. The frame is attached to movable arms which enable the receptacle to be swung out over the bottom unit. This permits employees to simultaneously load or unload both units. A square hamper, approximately the size of two rectangular units, occupies the end of the truck permitting loading or unloading of the hamper while the other two units are being used.

National Vulcanized Fibre Co., 1061 Beech St., Wilmington 99, Del.

Do you want more data? Write ◆ or use card on page 167; list M-105

Electric eye warns of wrinkles in fabric

A special photoelectric system for detecting wrinkles in the production of rubberized fabric can be used with equal effectiveness on all types of fabrics, films, and sheetings. Tied in with a relay control, the Mason photoelectric system immediately halts production until the wrinkles are eliminated from the fabric, thus preventing a jam at the cutter with the resultant fabric waste and loss of production time.

An installation in the plant of a large rubber manufacturer is extremely sensitive and scans the entire 10-foot width of the line. The beam that does the scanning is adjustable and will detect even very small wrinkles and trip the electronic relay.

Mason Instrument Co., Inc., 222 Valley Place, Mamaroneck, N. Y

Do you want more data? Write ◆ or use card on page 167; list M-106

Half lap improves Super J comber efficiency

The "Golden Circle Half Lap" for Whitin Super J combers permits a choice of better combing at the same production level or increased output of sliver of equivalent quality. Design of the new half lap is such that full benefit of all the needles is obtained, tendency to pluck is greatly reduced, and stripping brush is permitted to work more effectively.

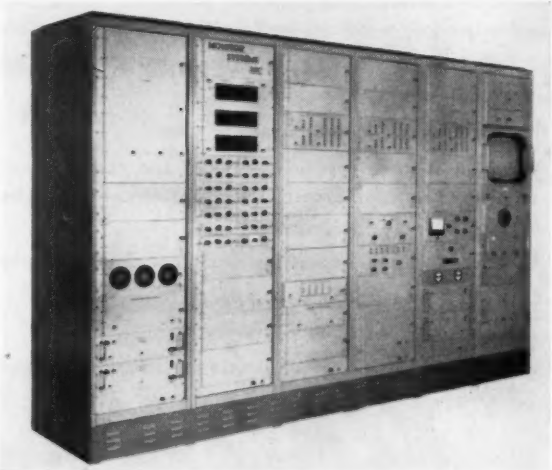
The lap fringe is drawn into the needles as quickly as possible and full penetration held throughout the combing cycle, since the needles are longer and the needle points of each row are brought to a common arc or true circle. Needles in the first few rows are spaced slightly farther apart so that the bulkier fringe of fibers may be more easily penetrated and brought into a more effective combing position.

A single piece aluminum core containing accurately milled slots holds the needle bars in exact position. Repair and replacement of damaged needle bars is relatively easy.

Whitin Machine Works, Whitinsville, Mass.

Do you want more data? Write ◆ or use card on page 167; list M-107

System for automation of wet processing



A line of standard Series 7000 Digital Data Recording and Alarm Scanning Systems for automation of textile wet processing utilizes the "building block" technique throughout. Through use of the modular design principle and selection of the appropriate black boxes from the large variety of standard field-proven building blocks, the Series 7000 can be designed to meet the accuracy,

NEW IDEA IN TOTE BOXES

KENTEX DOFFMASTER

- High impact, molded polyester fiberglass liner. No seams—no leaks.
- "Lockweld" construction features hardened aluminum rust-free frame. Liner is positively prevented from coming out unless four welds are broken. Virtually indestructible.
- A favorite of doffers because of easy grip, smooth lifting handle and light weight.
- No rough edges to snag hands or yarn.
- Withstands autoclave temperatures and resists practically any chemical. Excellent for yarn conditioning when perforated.
- Tailor-made to your specifications. Your choice of color.

Use handy return card in this issue for additional information

KENTEX

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TEXTILE APRON COMPANY

3131 Main Street, P. O. Box 168

East Point, Ga.

speed, and reliability specifications of virtually any wet processing application without costly over-design. Systems from the simplest to the most complex can be designed on practically an "off-the-shelf" basis.

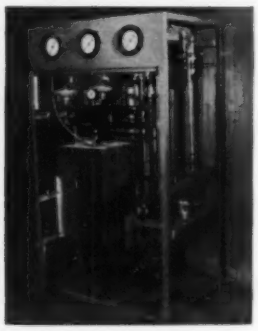
The equipment can be used to scan any process variable that is reducible to electrical form at speeds ranging from those of typewriter readout devices to speeds of presently available magnetic tape recording units. Systems with accuracies to 0.01% are available.

Electrical inputs from primary instruments such as thermocouples, resistance temperature detectors, flowmeters, pneumatic instruments, or other transducers can be scanned and converted into digital form for readout in any format desired. Computing functions, self-check, and self-repair features are available. Since the systems provide true digital comparison of set points against variable, the highest possible alarm scanning reliability is assured.

Monitor Systems, Inc., a subsidiary of Epsco, Inc., Fort Washington Industrial Park, Fort Washington, Pa.

Do you want more data? Write ☁ or use card on page 167; list M-108

Starch cooker offers more versatility in sizing



A modification of the original Nemo jet automatic starch cooker gives the cooker greater versatility in warp sizing applications. Design of the new model permits modification of starches during warp-size cooking, making possible substantial savings on starch consumed. In either continuous or intermittent operation, warp sizes produced in the modified Nemo cooker exhibit much less setback than equivalent fluidity starch batch-cooked in open kettles.

With minor adjustments in slurry cycling and instrument control, the new machine operates more smoothly, with excellent uniformity of viscosity. These developments—coupled with operational savings, continually fresh size, uniform temperature and flow—offer a great competitive advantage to users.

The machine is completely self-contained, with slurry pump and small process supply tank, but accessories available for special applications provide for softener or conditioner injection and paste flash-chamber at the size box. In cases where space limitations or accessibility present special difficulties, the cooker may be sectionalized and mounted over-head or along walls with no sacrifice in utility or efficiency.

Tied in with a bulk handling and automatic slurry preparation system, the new Nemo can completely automate size preparation and handling from railcar to size box.

Guidance in modifying or converting original Nemo

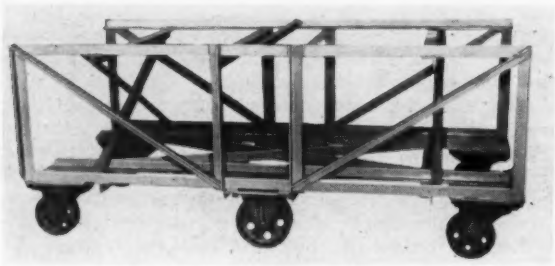
For further information use Handy Return Card, Page 167

models now being used in the preparation of warp sizes is available.

Corn Products Sales Co., Industrial Div., 10 E. 56th St., New York 22, N. Y.

Do you want more data? Write ◂ or use card on page 167; list M-109

How to keep skeins untangled in dyehouse

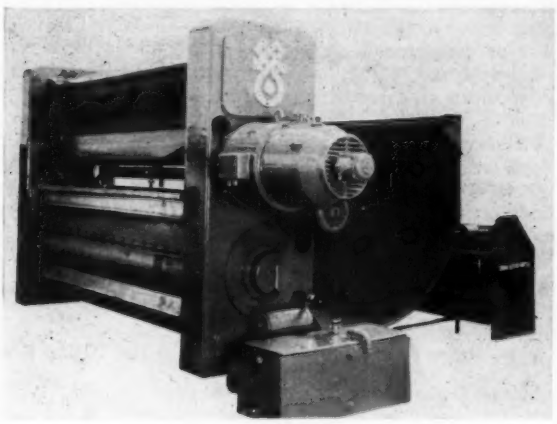


A yarn carrier truck designed to handle the yarn carriers received from the Klauder Weldon Giles Duo-Flo skein dyeing machine is available. Structural steel construction and oversized wheels provide both strength and minimum wear on floors. Stainless steel members are utilized at the point of contact with the yarn carrier. The truck can also be provided in sizes to fit yarn carriers from other makes of skein dyeing machines.

Klauder Weldon Giles Machine Co., Adams Ave. & Leiper St., Philadelphia 24, Pa.

Do you want more data? Write ◂ or use card on page 167; list M-110

More efficient mangle cuts fabric drying costs



Because of the uniform manner in which the Kusters Aquaroll mangle extracts moisture from fabrics, the machine may be used before drying operations to reduce the number of dry cans and steam required; and in applications where drying limits production, the unit permits an increase in operating speed (some users report as much as 37 per cent). Some specific applications are: after desizing, boiling-off, and bleaching; in connection with mercerization after neutralization; after washing and continuous dyeing ranges before drying; in printing ranges in combination with a Kusters Vibro-tex continuous backgrey washing machine.

Increased extraction across the entire width of the

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*TM APPLIED FOR

the new idea in ring finishes

that combines all the superior qualities of Diamond Finish hardness, tolerance and roundness

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NEW! AUTOMATIC SELF CLEANING

LINT-A-MAZE ARRESTOR

Cleans the air of...

* **LINT**
* **CHAFF**
* **FIBROUS MATERIAL**

AIR-MAZE LINT-A-MAZE FILTERS are specially designed to provide 98% or more efficiency in removing heavy concentrations of lint, chaff, leather cuttings and similar materials from the air. Brushes mounted on a chain carrier continually sweep and automatically clean the collector screens. Collected material is deposited in a hopper for reprocessing or sale. Lint-A-Maze filters offer these important advantages:

- Low initial cost . . . low operating cost
- Require less than 50% of the space normally needed
- Virtually eliminate maintenance – no rolls or blankets to replace, no washing or cleaning
- Handle wet or dry impurities
- Can be installed in any recirculating air opening, ventilating or air-conditioning system
- Available for airflow requirements from 7,000 to 150,000 CFM, can handle air velocities from 250 to 1900 FPM.

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AIR-MAZE DIVISION
CLEVELAND 28, OHIO
ROCKWELL-STANDARD CORPORATION

fabric is made possible by the use of a pressure roller which has no bearings, is sealed on all sides, and floats on a cushion of water. The water is contained in an aluminum pressure chamber divided into two sections. Water pressure of 60 psi is utilized to force the pressure roller against the counter roller. This pressure is applied evenly to the projected area of the roller surface, providing equal distribution of pressure at the nip across the entire face width of the roll. The two-chamber design provides an air cushion which is automatically formed within the pressure chamber to provide a certain amount of elasticity or resiliency so that seams may pass between the rolls without causing damage.

The Vibro-tex backgrey washing machine previously mentioned is furnished underneath the Aquaroll mangle. Damp backgrey emerging from the equipment provides improved color value on the printed goods. Increased printing speeds and elimination of backgrey dry cans are other advantages of using the equipment.

Louis P. Batson Co., Box 3978 Park Place, Greenville, S. C.

Do you want more data? Write or use card on page 167; list M-111

Ring lasts longer, extends traveler life

The Saco-Lowell Marathon spinning ring features a matte (slightly irregular) finish on the working surfaces. This prevents the creation of a vacuum and thus results

in a lower coefficient of friction so that ring and traveler life is longer and the breaking-in period is shorter. Characterized by a black iron oxide surface, the ring has very deep case hardening to further extend its service life.

The ring manufacturing process involves automated heat-treating and electropolishing which gives a clean finish to the metal by removing the high spots of the surface without creating "dross" or filling the valleys with a soft metal. As a result, the surface of the ring is up to recommended hardness standards and a very low coefficient of friction is provided.

Saco-Lowell Shops, Replacement Parts Division, Drawer 2327, Greenville, S. C.

Do you want more data? Write or use card on page 167; list M-112

Better Teflon yarn for braiding packings

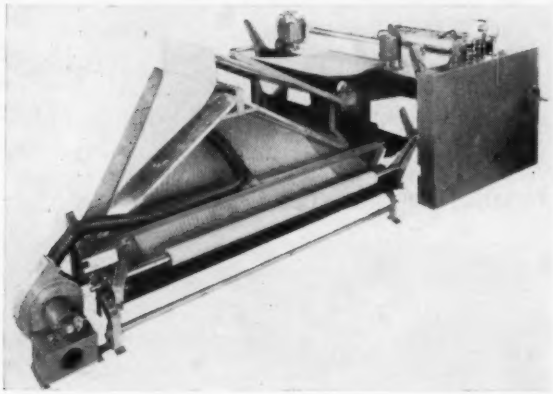
An improved "Teflon" TFE-fluorocarbon yarn specifically developed for braided packing for pumps and valves is available. Packings made from the new yarn, which is bleached and preshrunk prior to braiding, are much less sensitive to the effects of operational and frictional heat and more receptive to gland adjustment than the earlier fiber. Shorter run-in time is required and longer service life is provided. Outstanding properties are: resistance to flow, self-lubrication, chemical inertness, and a wide operating temperature range.

Textile Fibers Dept., E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del.

Do you want more data? Write or use card on page 167; list M-113

For further information use Handy Return Card, Page 167

Versatile calender for double jersey fabrics



Double jersey fabrics can be slit, opened, and rolled in one continuous operation at speeds up to 40 ypm, without the use of stiffening agents to prevent edge curl, on a calendering and opening machine recently placed on the market. Only one operator is required for the unit which is also equipped for double slitting and rolling so that it may be used in the preparation of fabrics for bathing suit manufacturing and for lamination to foam.

The machine takes the fabric directly from the knitting machine, steams it to width by means of top and bottom steam boxes, and maintains a weight per yard yield by use of an overfeed spreader and tensionless opening and rolling. The fabric is then cooled and slit on one side and then opened and rolled in one operation, eliminating the center crease.

Joseph Pernick Co., Inc., 5419 Flushing Ave., Maspeth 78, N. Y.

Do you want more data? Write ◂ or use card on page 167; list M-114

Storage system cuts finished goods damage

A new system of storing finished goods that cuts damage and increases selectivity has been announced. Key to the system is the use of Sturdi-Bilt Adjustable Storage Racks, which enable mills to increase finished cloth

For IMPROVED and SPEEDED processing ... with REDUCED WASTE

MERROW NOW OFFERS ... *IN A SINGLE MACHINE*

- ***WIDER STITCHING***

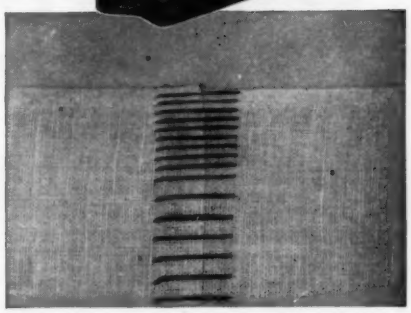
plus

- ***MULTIPLE STITCHING AT SELVAGES***

Some processors require a wide butted seam to eliminate "combing out" of coarse material under tension. Others, handling high count materials, need multiple stitching at the selvages for extra strength. Merrow now makes available a machine that fills **both** requirements.

The strong one thread seam (approximately 5/8" wide) is quickly and accurately formed by the high speed machine ... can be easily removed after processing. Result: improved processing ... higher production ... reduced waste.

Style 60 Y3B
Butted Seamer



Request complete information on this or other machines in the Merrow **complete line** of butted seamers.

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storage space as much as three to four hundred per cent by making full use of vertical space.

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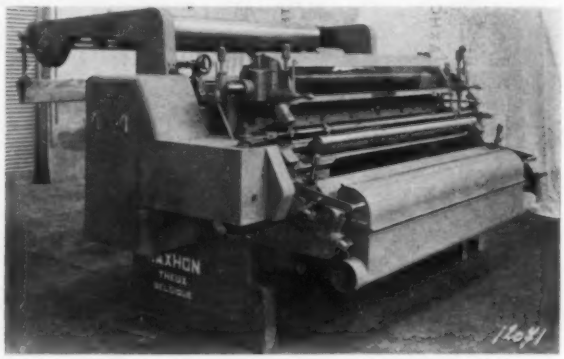
Sturdi-Bilt Material Handling Div., Union Asbestos & Rubber Co., 1111 W. Perry St., Bloomington, Ill.

Do you want more data? Write ◂ or use card on page 167; list M-115

Versatile, high-production shear



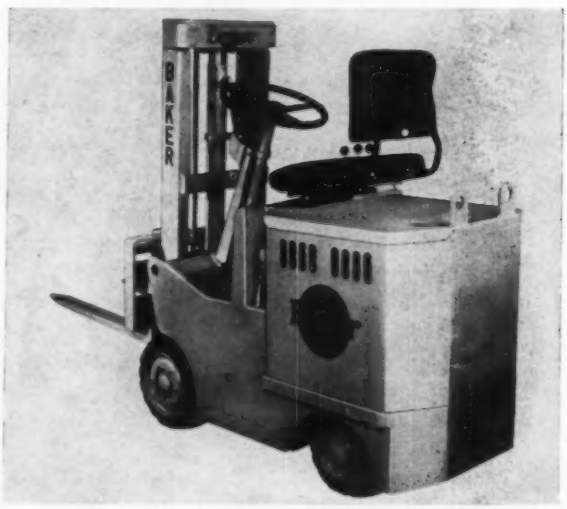
The Raxhon shear for woolen, synthetic, and cotton fabrics and blends operates at speeds up to 60 ypm and is equipped with a special vacuum system to cut evenly and accurately with cool cutting cylinder. A velveting device increases efficiency and versatility.

In the single cylinder unit 18 - 20 blades rotate at 1800 rpm. Vacuum raises fluff toward cutting blades, cools and cleans cutting mechanism.

Ernest L. Frankl Associates, Inc., 515 Madison Ave., New York 22, N. Y.

Do you want more data? Write ◂ or use card on page 167; list M-116

Compact 2,000-lb electric lift truck



A 2000-pound-capacity electric fork lift truck with a 59" turning radius and a right-angle-stacking aisle dimension of 70¾" plus the length of load has been announced. This new Baker Model FTD-020 Short Coupled

Truck is designed for easy servicing and heavy-duty operation, being powered by a standard 18-cell, 15-plate "bobtail" battery providing a full 36 volts.

Dimensions of the truck are: width, 33¼ inches; length, 102⅛ inches with standard 36-inch forks; overall height, 83 inches with a 130-inch lift mast. Provision of a full 10° forward and backward mast tilt is standard.

Baker Industrial Truck Div., Otis Elevator Co., Cleveland 2, Ohio.

Do you want more data? Write or use card on page 167; list M-117

Slasher drive power supply has no moving parts

Recently introduced was a single beam multimotor slasher drive furnished as an AVR Reactifier Drive which uses a static power supply composed of a silicon rectifier and saturable core reactors. The static power supply replaces both the a-c to d-c motor-generator set and the booster generator, and transister amplifier regulators are used in place of the Magamp current regulators utilized on earlier models. Among advantages of the static power supply are the fact that there are no moving parts and it is not affected by prevailing temperature and humidity conditions. Constant yarn tension is provided by friction and electrical loss compensation. A beam build-up of six to one permits more yarn to be wound on a beam.

The drive includes one or more d-c motors for driving size boxes, delivery rolls, and loom beams. Gear motors used to drive size box and delivery roll have ground-tooth gearing for quiet, more efficient transfer of power, and they are capable of withstanding heavy shock loading. Beam motors are silicon-insulated, drip-proof motors with a speed range of six to one by field control.

Westinghouse Electric Corp., P. O. Box 2099, Pittsburgh 30, Pa.

Do you want more data? Write or use card on page 167; list M-118

55/45 Dacron-cotton yarn makes fancy socks

Fancy patterns in color in Dacron and combed cotton socks for men and boys can be produced with a new 55% Dacron, 45% combed cotton yarn which is ingrain dyed in basic hosiery shades and new spring colors. Socks made from this yarn, called "Four Seasons," offer durability and comfort for the wearer.

Yarn Sales Dept., J. P. Stevens & Co., Inc., Stevens Building, Broadway at 41st St., New York 36, N. Y.

Do you want more data? Write or use card on page 167; list M-119

Roving cans have stronger top rings

A top ring that is two or three times stronger than the one formerly used is put on roving cans now being produced by National Vulcanized Fibre Co. The ring, introduced on the firm's seamless 20" roving cans, is made of 2"-wide 14-gauge galvanized steel as compared to 1½"-wide 16-gauge galvanized steel used on earlier models. The shape of the ring is also changed to provide additional strength and withstand unusual strain.

National Vulcanized Fibre Co., 1061 Beech St., Wilmington 99, Del.

Do you want more data? Write or use card on page 167; list M-120

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- Plastic Yarn Carriers & Spindle Adapters .... Modern Plastics Engineering Corp.
- Shuttle Fur ..... R. M. Taylor Co.
- Humidifiers ..... Walton Laboratories, Inc.
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- Dubo Spindle Lock Washers ..... G. Dikkers
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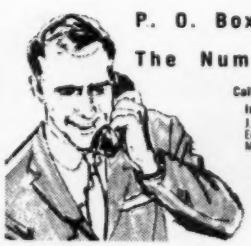


Call The Following Watson & Desmond Representatives

In Charlotte: J. A. Oswell, Edgar E. Ball, Marshall Gayle

In Greensboro: John Wyatt, Ralph Patton, Box 701, BRoadway 3-3012

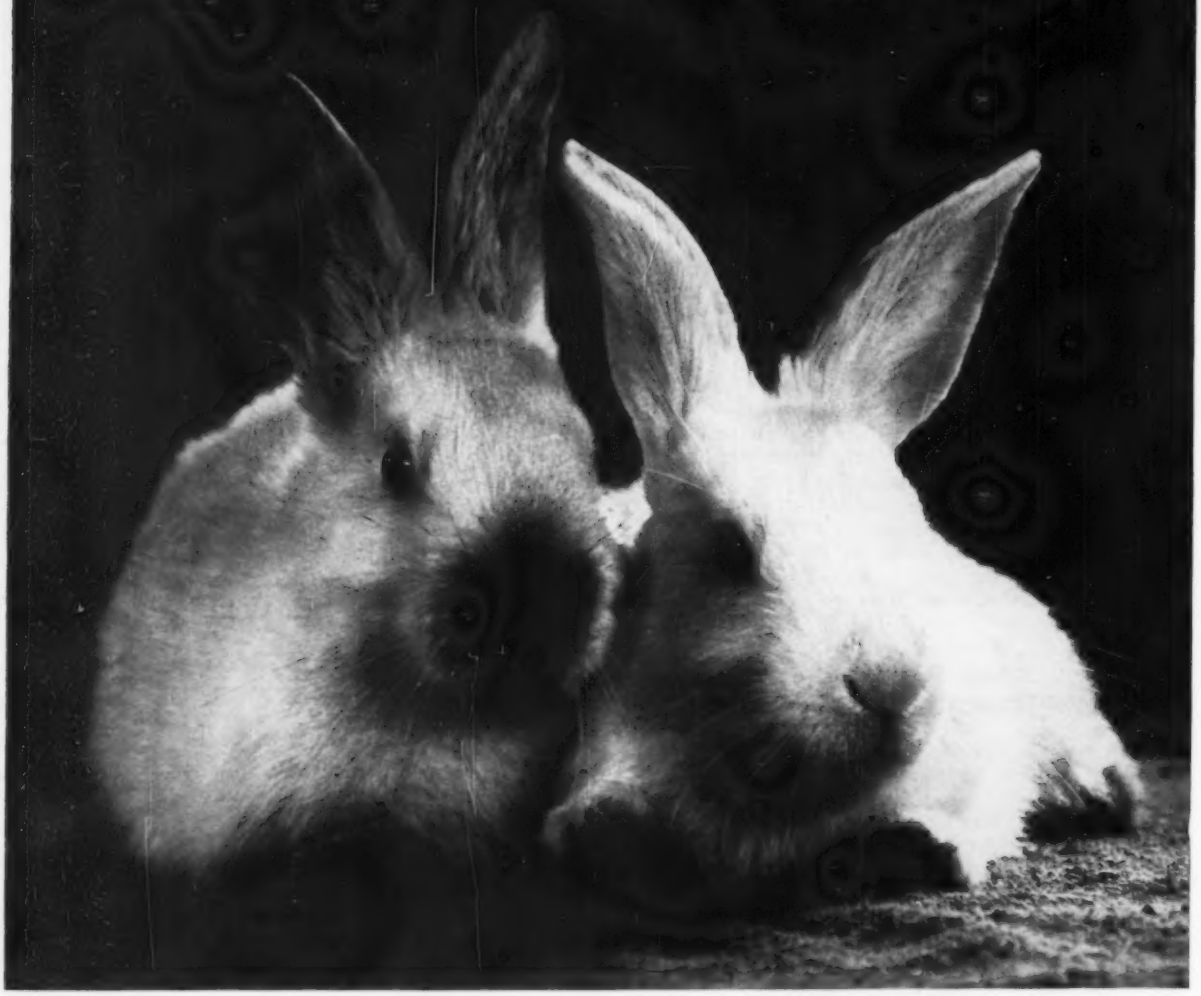
In Gastonia: Richard V. McPhail, Box 1174, UNiversity 5-8631

In West Point, Ga.: H. Dorsey Lanier, Box 421, Phone 64-23363

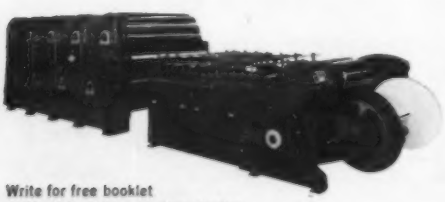
In Greenville, S. C.: Ray A. Norman, Box 779, CEdar 9-4279

About West Point Slashers,

Production Specialists agree...



When it comes to slashing more warp, the West Point Pacesetter is the industry leader. Sales prove the story... more than 300 West Point slashers have been sold in the last five years. Go to West Point for slashers! West Point Foundry & Machine Company, West Point, Ga.



Write for free booklet
on West Point's Pacesetter Slasher

For further information use Handy Return Card, Page 167

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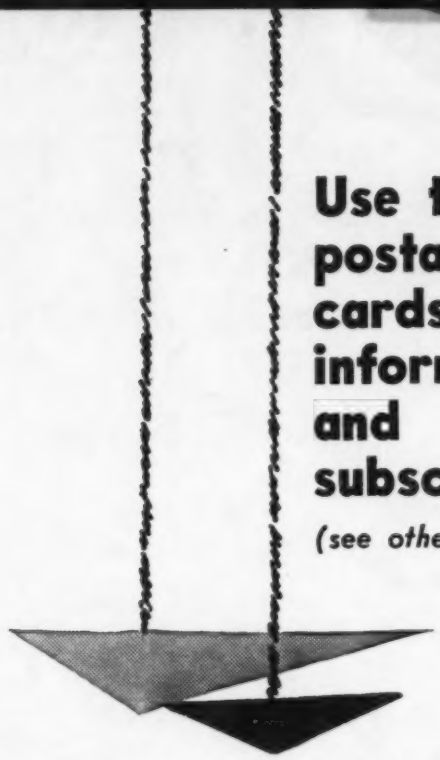

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FREE BOOKLETS

11-1 COMPRESSION STRAPPING MACHINE—Folder describes "F-11," the most compact and efficient compression strapping machine in the textile industry. Acme Steel Products Division, Department TAS-111, 135th Street & Perry Avenue, Chicago 27, Illinois.

11-2 COTRON FOR WEAVING OR KNITTING—Information on "Cotron," a blending of Avisco rayon with cotton, telling how each fiber complements the other. American Viscose Corporation, 350 Fifth Avenue, New York 1, New York.

11-3 PACKAGE DESIGN KIERS—Circular gives complete information on package design kiers for boiling or bleaching all types of cotton goods. William Allen Son's Company, Shrewsbury, Massachusetts.

11-4 PERACETIC ACID—Information on how synthetic goods can be kept clear white through bleaching with peracetic acid. Department TI-61-1, Becco Chemical Division, 161 East 42nd Street, New York 17, New York.

11-5 FIBER PREPARATORY EQUIPMENT—Write on company letterhead for a complete file of descriptive sheets on Carolina Machinery fiber preparatory equipment. Carolina Machinery Company, 5019 Wilkinson Boulevard, Charlotte 1, North Carolina.

11-6 SLASHER CATALOG—Illustrated catalog available describing various types of slashers, and including pertinent information on each. Cocker Machine & Foundry Company, Gastonia, North Carolina.

11-7 SHADOGRAPH SCALES—Bulletin describes new optical system which provides "Shadograph" with greater than ever visible accuracy. Request bulletin 3328, Exact Weight Scale Company, 922 West Fifth Avenue, Columbus 8, Ohio.

11-8 CARBOXYLIC PLIOLITE LATICES—Samples and technical data available on "Pliolite" latices for use in carpet backing, scrimming, upholstery backing, nonwovens, etc. Goodyear Chemical Division, Department K-9439, Akron 16, Ohio.

11-9 ROTARY PRESSURE JOINTS—Catalog describes self-supporting Johnson joints for all needs. Request catalog S-3002, The Johnson Corporation, 815 Wood Street, Three Rivers, Michigan.

11-10 BUTTED SEAMS—Brochure describes single machine that provides wider stitching at selvages. Merrow Machine Company, 2805 Laurel Street, Hartford, Connecticut.

11-11 SEAMLESS CAN—Actual cross-section sample of top rim of new 20" seamless can, plus prices and data available by writing on company letterhead to National Vulcanized Fibre Company, Box 311, Wilmington, Delaware.

11-12 NORCROSS SIZEOMETER—Literature describes maximum sizing and weaving efficiency of viscosity controlled size preparation system. Norcross Corporation, Newton 58, Massachusetts.

11-13 NON-YELLOWING SOFTENER—Full information on new cationic softener GW, a non-yellowing cationic softener for luxuriously smooth fabrics. Proctor & Gamble, Specialty Products Department, Textile Finishes Section, P. O. Box 599, Cincinnati 1, Ohio.

11-14 ALLEY-SKAT—Bulletin 502 describes "Alley-Skat" sliver handling system that speeds doffing and conveying of big cans. Southern States, Hampton, Georgia.

11-15 NEW COILER LINE—Bulletin 205 describes premium quality coiler which may be offset for can diameters up to 20 inches. Southern States, Hampton, Georgia.

11-16 FIDELITY SKEIN REELER—Brochure describes skein reeler which is job-proven in mills throughout the world. Singer-Fidelity, Inc., 3908 Frankford Avenue, Philadelphia 24, Pennsylvania.

11-17 STOP OIL LOSS—Information on how to stop losses in quality resulting from improper oiling. Texaco, Inc., Department TI-62, 135 East 42nd Street, New York 17, New York.

11-18 HYDROSULFITES—Folder describes use of hydrosulfites for printing, stripping, decolorizing, dyeing, etc. Nopco Chemical Company, 60 Park Place, Newark, New Jersey.

11-19 FEMCO EQUIPMENT—Brochure describes Femco's line of V-belt molds and equipment, foam fabricating machinery, and roller die cutters. Falls Engineering and Machine Company, Cuyahoga Falls, Ohio.

BOOKLETS

raw stock to roving

T-101 **LUMMUS PEPPER - SHAKER OPENER.** Gives complete details and photographs. Aldrich Machine Works, P. O. Box 750, Atlanta, Ga.

T-102 **STATIC ELIMINATION.** How to eliminate static safely and inexpensively. Simco Co., 920 Walnut St., Lansdale, Pa.

T-105 **VERSA - MATIC DRAWING FRAME.** Describes drafting elements, quality of sliver, roving and yarn possible. Saco-Lowell Shops, Textile Machinery Div., Easley, S. C.

T-106 **SARGENT OPENER.** Describes opener with rotary evener and stripper. C. G. Sargent's Sons Corp., Graniteville, Mass.

T-107 **FEATHERTOUCH DRAFTING.** How to get "highest production per frame at lowest cost." Ideal Industries, Inc., Bessemer City, N. C.

T-112 **ADVANTAGES OF ALDRICH PICKERS.** Good technical text, comprehensive pictures. Aldrich Machine Works, P. O. Box 750, Atlanta, Ga.

T-113 **NEW CONDENSER TAPE.** Describes Supr-O-Tape, an impregnated fabric condenser tape. Benjamin Booth Co., Allegheny Ave. & Janney St., Phiadelphia 34, Pa.

T-119 **FIBER METER.** Automatic weighing and blending assures quality, holds variation to 1%. James Hunter, Inc., P. O. Box 298, Mauldin, S. C.

T-120 **PIN DRAFTERS.** Textile job report No. 21 tells how Warner & Swasey Pin Drafters help modify jute systems for carpet yarns. Warner & Swasey Co., 5701 Carnegie Ave., Cleveland 3, Ohio.

T-121 **UNIVERSAL CARD COILER.** Literature describes both head and base swivel for adjustment. Includes data on 90-day free trial. McDonough Power Equipment, Inc., McDonough, Ga.

T-122 **RECONDITION OPENING & CLEANING.** Bulletin gives whys and wherefores of reconditioning your opening and cleaning lines. Special attention given to each machine with suggestions as to parts replacement. Saco-Lowell Shops, Replacement Parts Div., Box 327, Greenville, S. C.

T-123 **COILER CONVERSIONS.** Full facts on low initial cost conversion to larger coiler cans. Lists advantages, has complete description. Southern States Equipment Corp., Hampton, Ga.

T-124 **CARD DRIVE.** Bulletin 301-a describes simple, safe, efficient individual card drive. Southern States Equipment Corp., Hampton, Ga.

T-132 **PROCTOR SUPER PICKER.** Data sheet gives details of the Proctor Super Picker for use on slabs of baled cotton, or wool and synthetic blends in layers up to 12" thick. Proctor & Schwartz, Inc., 7th St. and Tabor Rd., Philadelphia 20, Pa.

yarn and warp making

T-201 **PRODUCTS FOR SPINNING AND WEAVING.** Complete line, applications, advantages shown. Dayco Corp., Textile Div., Dayton, Ohio.

T-202 **NEW BOBBIN MANUAL.** Complete bobbin guide. Lestershire Spool Division, National Vulcanized Fibre Co., Wilmington 99, Delaware.

T-203 **SPINDLE OIL.** "Gulfspin" insures against excessive wear and eliminates spindle wobble. Gulf Oil Corp., Gulf Bldg., Houston, Texas.

T-205 **HIGH SPEED AUTOMATIC QUILLER.** Lists advantages and dimensions of "Autocopser." Terrell Machine Co., Inc., P. O. Box 928, Charlotte, N. C.

T-208 **PACKAGED SPINNER MODERNIZATION.** Details on Collecto-Vac, Open-Aire Creels, Cross-Jet Cleaner, Air Conditioning Bahnson Company, Winston-Salem, N. C.

T-209 **SECTIONAL WARPER.** Describes full width and sectional warpers for knitting, weaving. Robert Reiner, Inc., Weehawken, New Jersey.

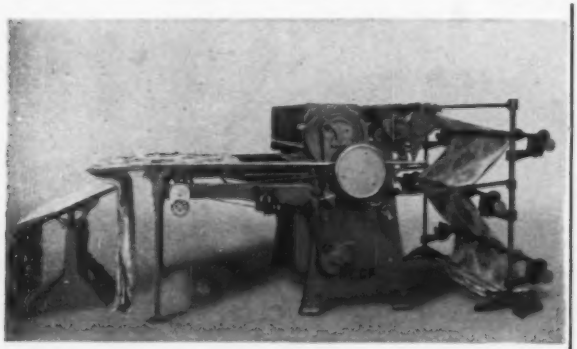
T-210 **CONICAL RINGS AND FLYERS.** Complete details and specifications. Herr Manufacturing Co., Inc., 318 Franklin St., Buffalo 2, New York.

T-211 **PRECISE WINDING MACHINE.** For winding pineapple or straight cones and tubes of synthetics. Foster Machine Co., Westfield, Mass.

T-212 **AUTOMATIC CLEANING EQUIPMENT.** Working details and advantages of the Tri-Rail Cleaner. American MonoRail Co., 111 East 200th St., Cleveland 17, Ohio.

T-216 **SPINNING FRAME CONVERSIONS.** Big-package, new frame results at half the cost. Meadows Mfg. Co., P. O. Box 10676, Station A, Atlanta, Ga.

T-217 **COLLECTO-VAC.** New development collects line, fly and broken ends. The Bahnson Company, Winston-Salem, N. C.



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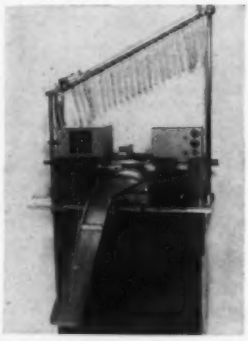

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T-319 ECLIPSE STARCHES FOR TEXTILES. Data sheet describes use of thin-boiling starches in the textile industry, with particular emphasis on warp sizing. Physical and chemical data included. A. E. Staley Mfg. Co., Decatur, Ill.

T-321 COCKER SLASHERS. Complete specifications and advantages, including allied equipment. Cocker Machine & Foundry Co., Gastonia, N. C.

T-322 MOUNTS FOR LOOMS. Vinyl mount eliminates need for bolts or paste. Clark, Cutler, McDermott Co., 106 W. Central St., Franklin, Mass.

T-323 UNIFIL LOOM WINDER. Describes new concept of filling preparation which needs no quilling area. Leesona Corp., P. O. Box 1605, Providence, R. I.

T-324 ALIGNING LAYS. Setting instructions for step-by-step aligning. Draper Corporation, Hopedale, Mass.

T-325 TRAVELING LOOM CLEANER. Advantages of the new Oscillaire loom cleaner. Parks-Cramer Co., Fitchburg, Mass.

T-326 DRAPER REPAIR PARTS CATALOG. Contains illustrations covering all mechanisms and construction with complete listings. Draper Corporation, Hopedale, Mass.

T-328 TEXTILE MACHINERY PARTS CATALOG. Describes complete line of Dayco and Thorobred textile parts. Dayco Corp., Dayton, Ohio.

T-329 COUNTING DEVICES. Describes complete line of counters for every application. Trumeter Company, 38 W. 32nd St., New York 1, New York.

T-331 STATIC BARS. Humorously illustrates how static can be overcome. The Simco Co., 920 Walnut St., Lansdale, Pa.

T-332 CARE OF DRAPER SHUTTLES. Describes how longer, trouble-free service may be obtained. Draper Corporation, Hopedale, Mass.

T-346 FACTS ON NONWOVENS. Fact file on non-wovens tells of new machinery, new methods of handling fibers, new bonding agents, etc. Curlator Corporation, Textile Division East Rochester, N. Y.

T-347 NEW DRYING SYSTEM. Describes high capacity, custom engineered drying equipment for tufted plants. Dalton Sheet Metal Co., Inc., Dalton, Ga.

T-351 AUTOMATIC STOP MOTION. Complete information available on automatic stop motion for Titan warp tying-in machine. Edda International Corp., 468 Fourth Ave., New York 16, N. Y.

T-353 BACKING FOR TUFTEDS. How to get your tufting necessities with one telephone call. Fulton Cotton Mills, P. O. Box 1726, Atlanta 1, Ga.

T-355 NON-WOVEN FABRICS. Booklet gives outline of nature and history of non-woven and the manufacturing techniques of today. Booklet 56-219A. Chemical Div., Goodyear Tire & Rubber Co., Akron 16, Ohio.

T-358 LOOM SUPPLIES. Information on rod lubricant and applicator, sponge leather bunter, picker. Garland Mfg. Co., 54 Water St., Saco, Me.

T-362 SIZE THAT SATISFIES. Information on getting the correct size package for your mill. Also on Bingham line of slasher rolls. Stodghill & Co., 716 Ponce de Leon Place, Atlanta, Georgia.

T-363 RUBBER COVERED SLASHER ROLLS. Handy booklet tells how to get longer life and better performance from rubber covered rolls. Includes data on handling storing and grinding. Stowe-Woodward, Inc., Dept. C, 181 Oak St., Newton Upper Falls 64, Mass.

T-364 CONTINUOUS STARCH COOKER. Booklet shows how the use of continuous cookers for starch assures accurate control, economy, low maintenance in warp sizing and finishing. Clinton Corn Processing Company, Clinton, Iowa.

knitting

T-403 RASCHEL KNITTER. Describes new Raschel-type knitting machine. Kidde Textile Machinery Corp., Inc., Farrand St., Bloomfield, N. J.

T-406 NEEDLE OIL DOES NOT STAIN. Details on "Gulftex 39" developed for knitting mills. Gulf Oil Corp., Gulf Bldg., Houston, Texas.

T-407 KNITTING MACHINES. Information on Wildman "TFS" 30" single section F-F machines and "AL" 30" diameter 32-feed "single purpose" circular interlock machine (rib type). Wildman-Jacquard Div., Draper Corp., Hopedale, Mass.

T-410 "READING" TYPE 60 F-F KNITTING MACHINE. Information about the new "Reading" Type 60,

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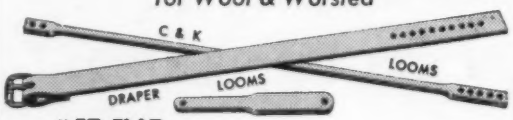

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BOOKLETS

38-section automatic full-fashioned hosiery knitting machine. Write Textile Machine Works, Reading, Pa.

wet processing

T-500 **WEBB GUIDE SYSTEMS.** Folio No. EG-84 describes webb guide systems for cloth applications. G.P.E. Controls, Inc., 240 E. Ontario St., Chicago, 11, Ill.

T-502 **FINISHING MACHINERY.** Text and photographs of complete line of machinery. Marshall and Williams Corp., 46 Baker St., Providence, R. I.

T-503 **WATER ANALYSIS.** Includes tables, conversion factors, indicators, standard solutions. Solvay Process Div. Allied Chemical Corp., 61 Broadway, New York 6, N. Y.

T-504 **UREA FORMALDEHYDE.** Literature on urea formaldehyde or U.F. concentrate-85. Dept. CUFI-29-1. Nitrogen Div., Allied Chemical Corp., 40 Rector St., New York 6, New York.

T-506 **CATIONIC SURFACE ACTIVE AGENT.** Describes Uversoft "D." Harshaw Chemical Co., 1945 East 97th St., Cleveland 6, Ohio.

T-508 **PEROXIDE BLEACHING SYSTEM.** Illustrates and describes this continuous system. E. I. du Pont de Nemours & Co., Electrochemical Dept., Wilmington, Del.

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T-510 **TEXTILE CHEMICALS.** Describes leading products for wet processors. Royce Chemical Co., Carlton Hill, N. J.

T-512 **DEPUMA.** Describes odorless viscous, non-evaporating emulsion for anti-foam. Koppers Co., Inc., Chemicals & Dyestuffs Div., Porter Bldg., Pittsburgh 19, Pa.

T-513 **CATALYST AC-6.** Tells how curing efficiency may be stepped up as much as 25%. Monsanto Chemical Co., Plastic Division, Springfield 2, Mass.

T-514 **SODA ASH BULLETIN.** Contains useful data covering this subject. Solvay Sales Division Allied Chemical Corp., 40 Rector St., New York 6, New York.

T-516 **ALUMINUM CHELATE PEA-1.** Technical data sheet tells how aluminum Chelate PEA-1 may be used with advantage in many applications where aluminum in proplate is unsatisfactory. Harshaw Chemical Co., 1945 East 97th St., Cleveland 6, Ohio.

T-517 **CHEMICAL CATALOG.** Lists products with chemical composition, properties and applications. Antara Chemicals Div., General Aniline & Film Corp., 435 Hudson St., New York 14, New York.

T-519 **HYDRAULIC POWER UNITS.** Describes unit for operating hydraulic textile machines. B. F. Perkins & Son, Inc., Holyoke, Mass.

T-522 **CUT WATER TREATMENT COSTS.** Describes the control of scale, slime, algae and corrosion. Oakite Products, Inc., 126C Rector St., New York 6, New York.

T-526 **PRODUCTS FOR TEXTILE IMPROVEMENT.** Describes products and services designed to provide better fabrics. B. F. Goodrich Chemical Co., 3135 Euclid Ave., Cleveland 15, Ohio.

T-527 **SODIUM HYDROSULFITE.** Literature and test samples are available on "T-C Hydro." Tennessee Corp., 617-629 Grant Bldg., Atlanta, Ga.

T-528 **ETHANOLAMINES.** Lists application, chemical and physical properties. Nitrogen Division, Allied Chemical Corp., 40 Rector St., New York 6, New York.

T-531 **ROTARY DYEING MACHINE.** For use in dyeing hosiery, hats, gloves, socks, etc. Turbo Machine Co., Lansdale, Pa.

T-534 **DYEING AND FINISHING MACHINERY.** Complete line presented in series of catalogs. Birch Brothers, Inc., 32 Kent St., Somerville 43, Mass.

T-535 **DYEING, BLEACHING AND DRYING EQUIPMENT.** Complete line for cotton, wool and synthetics described. Color pictures. Morton Machine Works, 1718 3rd Ave., Columbus, Ga.

T-536 **NAPHTHOL RATIOS SLIDE CHART.** Quickly and accurately enables operators to determine Naphthol Ratios. Alliance Color & Chemical Co., 33 Ave. P, Newark 5, New Jersey.

T-540 **PENFORD FINISHING GUMS.** Complete data, including physical properties. Penick & Ford Ltd., Inc., 750 Third Ave., New York 17, New York.

T-541 **REGENERATION OF ZEOLITE WATER SOFTENERS.** Explains advantages of Lixate Process. International Salt Co., Scranton, Pennsylvania.

T-542 **DYEING SYNTHETIC FIBERS.** Detailed analysis of methods and materials. General Dyestuff Co., 435 Hudson St., New York 14, New York.

T-543 **INDUSTRIAL BRUSHES.** Features use on shears, printing machines. M. W. Jenkins' Sons, Inc., 444 Pompton Ave., Cedar Grove, N. J.

T-544 **WASTE HEAT RECOVERY.** Describes system of waste heat recovery from polluted water. Ludell Mfg. Company, 5200 West State Street, Milwaukee, Wis.

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BOOKLETS

T-545 WASHERS FOR SCOURING, BLEACHING, ACIDIFYING. Describes high capacity, continuous process washers. C. G. Sargent's Sons Corp., Graniteville, Mass.

T-546 NAPHTHOL FOR LIGHTFAST BROWNS. Booklet describes new, straight, non-substantive naphthol. Naphthol As-BN, for the continuous naphtholation of cotton and rayon piece goods in the dyeing of economical, fast-to-light browns. General Dyestuff Co., 435 Hudson St., New York 14, New York.

T-547 SOFTENER LUBRICANT, NAPPING AID. Technical information available on softener, lubricant and napping aid for natural and synthetic fibers, yarns and fabrics. Nopco Chemical Co., Harrison, N. J.

T-554 INSTRUMENT CATALOG. Complete information on industrial instrument accessories and supplies. Includes specifications, parts numbers and prices. Catalog 500, Foxboro Co., Foxboro, Mass.

T-556 HUNTER DYEING EQUIPMENT. Describes fully with diagrams Hunter Model A Dye Becks Hunter No/Lap Reels, Model S Dye Kettles. Open Width Dye Kettles. Sample Dye Kettles. James Hunter Machine Co. North Adams, Mass.

T-557 HIGH ACTIVITY CATALYST. Technical bulletin describes new catalyst AC-6 which provides increased activity, excellent bath life, minimum odor formation, etc. Monsanto Chemical Co., Plastics Div., Springfield, Mass.

T-558 CATIONIC DYE LEVELER. Bulletin TX-34 gives new information on dye leveler for acid colors on nylon tricot and wool through use of Nopco 1425-B. Nopco Chemical Co., Textile Chemicals Div., Harrison, N. J.

T-561 PUMP POURABLE PASTES. Bulletin tells how Moyno pumps can pump any textile liquid that can be forced through a pipe, even if highly viscous or corrosive. Robbins & Myers, Inc., Springfield, Ohio.

T-563 POLYETHYLENE FINISHING AGENT. Booklet contains information needed to adopt Emulsifiable A-C polyethylene as a finishing agent to any particular process. Semet-Solvay Petrochemical Div., Allied Chemical Corp., 5th Floor T, Rector Street, New York 6, N. Y.

T-564 HYDROGEN PEROXIDE BLEACHING. Booklet discusses advantages, operating details and savings in chemical costs of Activated Hydrogen Peroxide Bleaching Process for Cotton Solvay Process Div., Allied Chemical Corp., 61 Broadway, New York 6, N. Y.

T-566 ETHYLEX GUMS. Brochure describes properties of hydroxy ethyl ether derivatives of corn starch. Applications of these noncongealing gums in warp sizing and finishing covered. A. E. Staley Mfg. Co., Box 151, Decatur, Ill.

T-572 DYEING MACHINERY FOR EVERY PURPOSE. Illustrated literature available on complete line of automatically controlled machinery. Gaston County Dyeing Machine Co., Stanley, N. C.

T-576 YARN PREPARATION. Describes products for yarn preparation, printing, finishing. Polymer Industries, Springdale, Conn.

T-577 STAINLESS DRY CANS. Information on stainless steel, 75 psi, reverse dished, head dry cans. Can be furnished Teflon-coated if desired. Sims Metal Works, West Point, Ga.

T-579 AUTOMATIC GUIDING EQUIPMENT. Catalog shows various types of automatic guiding equipment for accurate cloth guiding. Fife Mfg. Co., Inc., P. O. Box 9815, Oklahoma City, Okla.

T-580 AIR SLASHER DRYER. Shows construction and operating details. Proctor & Schwartz, Inc., 7th St. and Tabor Rd., Philadelphia 20, Pa.

T-581 BUTT-TACKING SEWING MACHINE. Describes operation, installation of single thread butt-tacking sewing machine. The Merrow Machine Co., 28 Laurel St., Hartford, Conn.

fibers and yarns

T-601 FORTISAN-36, NEW TEXTILE FIBER. Includes charts, diagrams, text, presents technical properties. Textile Sales Dept., Celanese Corp. of America, P. O. Box 1414, Charlotte, N. C.

T-602 CAPROLAN NYLON HEAVY YARNS. Describes strength, long flex life and ready dyeability. Fiber Sales Dept., National Aniline Div., 261 Madison Ave., New York 16, N. Y.

T-604 THE CHEMSTRAND NYLON STORY. Describes the birth and growth of Chemstrand Nylon. Chemstrand Corp., 350 Fifth Ave., New York 1, N. Y.

T-605 COLOR-FAST FIBERS, Further information on "Coloray," Courtauld's solution dyed rayon staple which is a contribution to color fastness in fabrics. Courtaulds (Alabama) Inc., 600 Fifth Ave., New York 20, N. Y.

T-608 TASLAN TEXTURED YARNS. Technical information on dyeing and finishing of new fabrics made with Taslan. E. I. du Pont de Nemours & Co., Wilmington 98, Delaware.

T-609 PROCESSING NYLON STAPLE. Data sheet describes method of processing Du Pont 42 Nylon Staple in blends with cotton. Covers complete operation through sizing. Bulletin N-93. E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

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BOOKLETS

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T-701 **TESTING INSTRUMENTS.** Descriptions of 37 instruments for testing textiles. Custom Scientific Instruments, Inc., 541 Devon St., Kearny, N. J.

T-703 **SHADOGRAPH WEIGHING DEVICES.** Pictures and information on various types of scales. Exact Weight Scale Co., Columbus 8, Ohio.

T-705 **STROBOTAC.** Measures speed of rotating, reciprocating or other cyclic motions. General Radio Co., West Concord, Mass.

T-706 **YARN COUNT SCALE.** Data sheet tells show direct-reading instrument provides fast, accurate method of determining yarn number. Exact Weight Scale Co., Columbus 8, Ohio.

services for management

T-801 **FACTORING SERVICE.** Details on advantages of factoring, including information on general banking and pension plans. Trust Company of Georgia, Atlanta, Ga.

T-805 **PROFIT THROUGH FACTORING.** Brochure gives facts on the use of factoring as a modern plan for developing sound business growth and added profits. Walter E. Heller & Co., Dept. TI-2, 105 W. Adams St., Chicago 99, Ill.

T-808 **FACTORING.** Complete details on services offered as mill factors. L. F. Dommerich, 271 Madison Ave., New York, N. Y.

T-810 **THE WONALANCET WAY** is the title of an editorial booklet published five times a year dealing with current cotton problems. Write Wonalancet Company, 128 Burke St., Nashua, N. H.

T-812 **BEECHCRAFTS FOR 1961.** Booklet available from Southern Airways Company shows how Beechcraft executive airplanes can save executives time and money. Write Southern Airways Co., P. O. Box 718, Atlanta, Ga.

T-819 **ORGANIZED LUBRICATION PAYS.** Planning book entitled "Management Practices that Control Costs via Organized Lubrication" shows how to effect savings in five areas of plant operation. Available from Texaco, Inc., 135 E. 42nd St., New York 17, N. Y.

plant operation

T-902 **BELT LACING EQUIPMENT.** Includes prices, specifications, etc. Clipper Belt Lacer Co., Grand Rapids, Michigan.

T-903 **"MOTOR SELECTOR."** How to select a-c motors for specific application. Bulletin B-2103. Reliance Electric & Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio.

T-904 **GEARMOTORS, MOTORGEARS, AND FLUID DRIVES.** Catalog supplies complete information on double, triple, and quadruple reduction gearmotors and motorgears. Electrofluid and fluid drives are also explained. Link-Belt Company, Dept. PR, Prudential Plaza Chicago 1, Illinois.

T-907 **WRAP UP LINT PROBLEMS.** Automatic lint filter removes lint from air, winds it into disposable roll. Bulletin 234, American Air Filter Co., 275 Central Ave., Louisville 8, Ky.

T-908 **TEXTILE MOTORS.** Bulletin scribes complete line of textile motors. Diehl Mfg. Co., Finderne Plant, Somerville, N. J.

T-909 **COMPRESSORS.** WB two-stage water-cooled. Space-saving units require modest foundation up to 125 psi and 1150 cfm displacement. Bulletin WB-10. Gardner-Denver Company, Quincy, Illinois.

T-910 **MODERN LUBRICATION METHODS.** A report to management tells how modern lubrication methods can help save thousands of dollars in three major economic areas of textile plant management. Describes twelve operating advantages of automatic lubrication systems. Lincoln Engineering Co., 4010 Goodfellow Blvd., St. Louis 20, Mo.

T-912 **STORY OF NYLON BRISTLE.** Tells of discovery and production, with special attention to "Tynex," a form of nylon ideal for use in brushes. M. W. Jenkins' Sons, Inc., 444 Pompton Ave., Cedar Grove, N. J.

T-913 **"ONE-SHOT" LUBRICATORS.** Bulletin describes wide field of application for one-shot lubricators on machines requiring closely controlled but infrequent oil feed. Bijur Lubricating Corporation, Rochelle Park, N. J.

T-914 **INDUSTRIAL GREASES.** Describes multi-purpose lithium soap industrial greases. Sinclair Refining Co., 600 Fifth Ave., New York, New York.

T-917 **BLOWERS AND EXHAUSTERS** Full description, including detailed drawings. Buffalo Forge Co., 490 Broadway, Buffalo 5, N. Y.

T-918 **PAINT STRIPPING BOOKLET.** Explains simplified method of stripping paint. Oakite Products, Inc., 22 Thames St., New York 6, New York.

T-921 **CATALOG OF NEEDLE BEARINGS.** Design, application for five types of needle bearings. The Torrington Co., Torrington, Conn.

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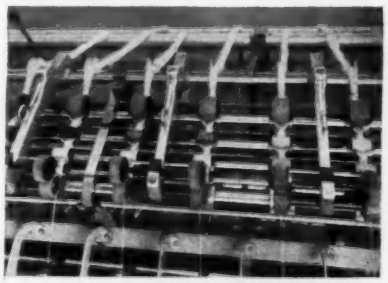

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MILL NOTES

(from page 52)

ditional refrigeration and air-conditioning facilities will be provided for the spinning and weave room. It is estimated that the building will be completed by January, 1962.

Two refrigeration units have been installed at **Joanna (S. C.) Cotton Mills Co.** A 1500-ton unit serves Mills No. 2 and 3, while the 500-ton unit has been installed in Mill No. 1, to serve the spinning room.

A modern raw stock dyeing plant, the first of its kind in the **West Point (Ga.) Manufacturing Co.** organization, is in operation at the Newnan (Ga.) Mill division, where sales yarns are manufactured for the tufting trade. Eight high-pressure dye machines, varying in size, permit efficient handling of both large and small batches.

The Butte Knitwear division of **Jonathan Logan, Inc.,** is expanding its mills in Spartanburg, S. C. When completed, the additional 35,000 sq ft of space will be used for warehousing.

Harms Hosiery Co., Bernville, Pa., has started production of knitted underwear.

Quality Mills, Mount Airy, N. C., has announced the acquisition of 34.000 sq ft of floor space from Standard Mfg. Co. The facility is undergoing extensive repairs and additions before being occupied by the knitting, bleaching, dyeing and finishing operations of Plant No. 2.

Alice Manufacturing Co., Easley, S. C., has announced plans for a 30.000 sq ft addition to the Alice plant. One thousand new looms will be installed in the new addition, while others will replace old looms now in operation.

Trico Dyeing Co., Philadelphia, Pa., has moved into a larger plant at B and Lippincott Streets. The new facility affords approximately 3,000 additional sq ft of floor space. New machinery is to be installed to increase production.

A new firm, **Western Laminating Co., Inc.,** has been established at 4528 Brazil St., Los Angeles, Calif., for laminating knitted, woven cotton, vinyl, and other fabrics to polyurethane foam. Barney Weingard, executive vice-president, is in charge of the operation.

J. P. Stevens & Co., Inc., has announced that arrangements have been made to acquire the Peerless Woolen Mills' plant at Tifton, Ga., from **Burlington Industries, Inc.**

The Jefferson Mills, Inc., has announced plans to extend to the employees of the No. 2 plant at Crawford, Ga., the opportunity to purchase the mill-owned houses. Twenty-six company-owned houses in Jefferson, Ga., were sold to employees in June of this year.

An enlargement and modernization program has been announced for No. 1 mill of **Clinton-Lydia Mills,** Clinton, S. C. When completed, the mill will be fully airconditioned and will house all manufacturing processes from opening to cloth storage.

A 50,000 sq ft addition has been announced for the No. 1 plant of **Mayfair Mills,** Arcadia, S. C., to house an additional 9400 spindles and 232 looms. Two warehouses will be constructed. Approximately 50 new employees will be needed when the project is completed in the spring of 1962.

A one-story building that will provide 9,000 additional sq ft of space for **Mauney Hosiery Mills, Inc.,** and approximately 5,500 sq ft for **Carolina Throwing Co.,** is now under construction at Kings Mountain, N. C. The building will provide all new quarters for the throwing firm, with the space vacated to be used by the hosiery firm as a warehouse. Both firms will add new personnel when the expansion is completed.

Riegel Textile Corp. has announced the closing of their work glove division. At the Conover, N. C., plant, plans are being studied for its adaptation to the production of other items in the company's product lines. The Brundidge, Ala., plant is being offered for sale, while the Greenville, Ala., facility has been leased to **The Boss Manufacturing Co.,** which will fill the unfilled work glove orders. * * * The cotton warehouse at the Trion division, with a capacity of 15,000 bales, has been completed.

The 50,000 sq ft finishing plant of **Collins & Aikman Corp.,** located in Clifton, N. J., is under construction. The firm will install new finishing equipment for pile fabrics as well as

For further information use Handy Return Card, Page 167

move equipment from other plants.

R. W. Twitty, W. W. Greene, T. L. Richie, A. B. Raymer, and J. C. Shaw, Jr., have purchased the mill buildings, equipment, and land occupied by the **Rocky Creek Mills** at Turnersburg, N. C. No changes will be made in personnel or operation.

M. Lowenstein & Sons, Inc., has announced the establishment of a fully staffed design studio in Paris, France. The studio will operate as European headquarters for all Lowenstein, Wamsutta, and Pacific Mills' stylists.

Orange (Va.) Knitting Mills, Inc., including equipment, has been purchased by Woodbury S. Ober. No immediate plans for operation have been announced.

The Springs Cotton Mills has announced plans to construct a $7 million cotton mill near the Grace Finishing Plant, Lancaster, S. C. The facility will contain more than 175,000 sq ft of floor space and employ 250 to 300 persons.

Knitters, Ltd., has discontinued operation of its yarn spinning and finishing plant at Lindsay, Ontario, Canada. The equipment is up for sale.

The Elastic Corp. has announced plans for an expansion program which will double production at the Hickory, N. C., location. Twelve new double-sided machines will go into production in December. The firm is also changing its corporate name to **Regal Manufacturing Co., Inc.**

McGowan Textile Mill, Beaver Meadows, Pa., has been destroyed by fire. Plans have been announced to begin rebuilding immediately on a site adjacent to the old plant.

Budyed Yarns, Inc., York S. C., has curtailed operations while existing equipment is being sold and new equipment is being purchased for handling all types of dyed yarns, both in natural and synthetic fields. Operations are expected to be resumed in about 90 days.

Tait Yarn Co., Lincolnton, N. C., has leased the business and facilities of **Franklin Decorative Yarn Co.,** Gastonia, N. C., which is owned and was formerly operated by Craftspun Novelty Yarns, Scranton, Pa. Some 1200 additional spindles will be installed at the Lincolnton facility in the near future.

A 60,000 sq ft addition to the bleachery division of **Thomaston (Ga.) Mills** has been announced. When completed next year, additional finishing equipment will be installed in a section of the new facility and the remainder will be used for storage of finished goods.

At the annual convention of the South Atlantic Council of Industrial Editors held in Columbia, S. C., recently, *The Textorian,* biweekly company publication for employees of **Cone Mills Corp.,** received the 1961 newspaper award. The Cone Mills' publication also received first prize for photography. Lelah Nell Masters is editor and Robert Weaver is photographer. * * * A safety award has been presented to the employees of the Cliffside (N. C.) division for having amassed half a million man-hours without a lost-time accident.

Kingson Mills, Inc., Durham, N. C., has acquired the operations of **Bryant Finishing Co.,** Coventry, R. I.

A 33,000 sq ft plant is being erected in Hopkinton, R. I., to house expanded operations of the **Dawn Fab-**

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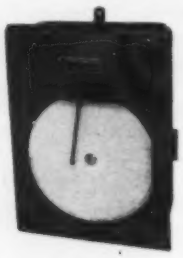

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MILL NOTES

(from page 177)

rics division of Warner Bros. Co. The one-story, air conditioned structure will be completed by next spring.

A large recreation center will be built in Atmore, Ala., by **Vanity Fair Corp.,** in cooperation with the city of Atmore.

Wayne Knitting Mills, Humboldt, Tenn., recently held a formal opening of its newly remodeled and enlarged plant.

Hadley-Peoples Manufacturing Co., Siler City, N. C., has announced a $550,000 expansion program. One building will contain 20,350 sq ft of space to house a finishing plant, more storage and office space, while the second building will contain 20,687 sq ft of space and will house a spinning plant.

Robinson Hosiery Mill, Catawba, N. C., has been purchased by **Betterwear Hosiery Mill, Inc.,** an affiliate of Rudin and Roth Hosiery, Inc.

Statement of Ownership

Statement required by the act of August 24, 1912, as amended by the acts of March 3, 1933, July 2, 1946 and June 11, 1960 (74 Stat. 208) showing the ownership, management, and circulation of TEXTILE INDUSTRIES published 13 times annually at Dalton, Georgia for October, 1961.

1. The names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, W. R. C. Smith Publishing Co., Atlanta, Ga.; Editor, George H. Dockray, Atlanta, Ga.; Managing Editor, J. Frank Guest, Atlanta, Ga.; Business Manager, John C. Cook, Atlanta, Georgia.

2. The owners are: W. R. C. Smith Publishing Co., Atlanta, Ga.; Estate of W. R. C. Smith, Atlanta, Ga., W. J. Rooke, Atlanta, Ga.; O. A. Sharpless, Atlanta, Ga.; T. W. McAllister, Windermere, Fla.; E. W. O'Brien, Atlanta, Ga.; J. C. Cook, Atlanta, Ga.; R. P. Smith, Atlanta, Ga.; Mrs. E. L. Philpot, Atlanta, Ga.; A. F. Roberts, Atlanta, Ga.; S. J. Jones, Atlanta, Ga.; W. C. Herbert, Atlanta, Ga.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was 15,675.

GEORGE H. DOCKRAY, Editor

Sworn to and subscribed before me this 8th day of September, 1961.

SEBA J. JONES, Notary Public
(SEAL)

My commission expires February 23, 1962.

SUPPLIER NOTES

W. A. Norman has been promoted to the newly established position of associate director of applications research and service for **The Chemstrand Corp.** E. J. Gilliland has been transferred to Decatur, Ala., as manager of Acrilan technical sales service. John B. Cole has been transferred to the applications research and service department as manager of nylon technical sales service in Pensacola. William R. O'Shields has been promoted to the newly created post of manager of nylon technical sales service in Greenwood, S. C. * * * The contract has been awarded for management information center, to be constructed in Greenville, S. C. * * * The firm has announced the acquisition of an interest in Blume Knitwear, Inc., manufacturers of "Helen Harper" sweaters and coordinates.

Russell A. Graham, executive vice-president and general manager of **Saco-Lowell Shops,** has announced the following appointments: Richard D. Abelson, vice-president of manufacturing with responsibility for the Easley, S. C., and Sanford, N. C., manufacturing operations, the White Horse replacement parts depot, and product engineering; Robert A. Hudson, product engineering manager with responsibility for product engineering over the entire range of textile machinery parts. Formerly administrative engineer at the Saco-Lowell Research & Development Center in Clemson, S. C., Mr. Hudson is now located at the textile machinery division general offices in Easley. * * * A. L. Park has retired from the sales department. * * * The firm has announced receipt of an order from Greenwood Mills for the following: Mathews Mill will install 40 MagneDraft spinning changeovers which will replace present drafting systems on 9,600 spindles. At the Greenwood plant, 33 spinning frames will be converted to Duo-Roth systems with the installation of changeovers on 9,900 spindles. Improved combing production is planned at the Ninety Six plant with the installation of 33 high production S-L comb-

For further information use Handy Return Card, Page 167

Mr. Abelson
Saco-Lowell

Mr. Lacy
Spinlab

Mr. Carter
Courtaulds

Mr. Brown
Texize

Mr. Gallman
Texize

Mr. Ellis
General Electric

er changeover parts. Also, the firm recently supplied a Saco-Lowell/Fleissner dryer for the Washington Mills Co.

William M. Lacy, Jr., has been appointed sales manager of **Special Instruments Laboratory, Inc.**

Ralph Skaar has joined **Spencer Chemical Co.** as eastern sales manager for the industrial chemicals division.

Homer M. Carter, Jr., has been named to head the marketing organization of **Courtaulds (Ala.), Inc.** to promote imported products made from Courtelle acrylic fiber. Charles E. Rodgers, Jr., has been appointed director of merchandising. Mr. Rodgers will continue as special assistant to the president, handling the exploration of new fiber possibilities. Royston Dunford has retired as director of development and public relations.

Ralph L. Parker has been appointed division manager for the North Carolina-Virginia area for the textile division of **Texize Chemicals, Inc.** Coyt C. Brown has succeeded Mr. Parker as sales and service representative in the two-state area. John C. Gallman has joined the sales and service staff. Mr. Gallman will be headquartered in Greenville and travel throughout the South.

Charles J. Ellis and Harry P. Gough have been elected regional vice-presidents of the **General Electric Co.,** for the southeastern and western regions respectively. Mr. Ellis will be headquartered in Atlanta, Ga., and Mr. Gough in San Francisco. * * * Neil E. Billman has been named east central district sales representative for the Silicone Products Department.

Jack E. Dalton has been named a special representative for the data processing division of **Mineapolis-Honeywell Regulator Co.** Richard T. Waits, Jr., has been appointed eastern regional industrial manager with headquarters in Long Island City, N. Y.

Robbins & Myers, Inc. has announced the formation of a new division to be known as the Airtrol division. Airtrol will specialize in the design, production, and marketing of unit-type collectors for the control of dusts and mists encountered in industrial and commercial operations.

Arthur Minich has been appointed president of Heyden Chemical division of **Heyden Newport Chemical Corp.,** succeeding the late R. M. Aude. William J. Houston has been named executive vice-president and Dr. H. W. Schultze has assumed duties as technical director of the Nuodex products division.

At the annual meeting of the **Textile Chemical Manufacturers Association** held in Atlantic City, N. J., recently, John M. McChesney, Jr., president of **Leatex Chemical Co.,** was elected president. Fritz O. Robitschek, president of **Onyx Oil & Chemical Co.,** was elected vice-president, and William H. Bertolet, 3rd, of **Laurel Soap Manufacturing Co., Inc.,** was elected secretary-treasurer.

E. S. Underwood has been named product manager of surfactants, and W. C. Calvert, Jr., has been appointed product manager of heavy

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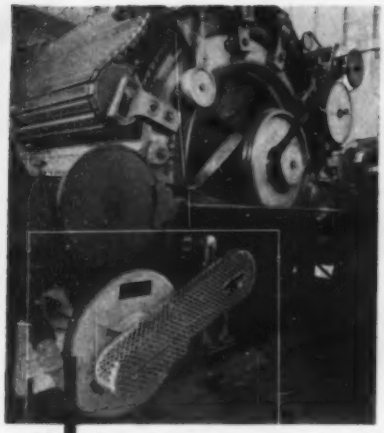

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SUPPLIER NOTES

(from page 179)

Mr. Davis

Mr. Williams

Whitinsville Spinning Ring

chemicals for Antara Chemicals, a division of **General Aniline & Film Corp.**

Dr. Reiner G. Stoll has been promoted to the new post of assistant director of marketing—plans and programs for **Celanese Corp. of America.** Dr. Robert D. Williams has been named to succeed Dr. Stoll as director of the applications and product development laboratories in Charlotte. Fred Fortess has been appointed assistant director of the laboratories.

Hobourn Sales, Inc. has announced the opening of their new office and show room in Spartanburg, S. C. The mailing address is P. O. Box 2665-Station A, Spartanburg, S. C.

Jack B. Schneider has joined the executive staff of **Mill Factors Corp.**

Carl D. Whitmer, Jr., has been appointed manager of the Greenville, S. C., sales and service center of **Veeder-Root, Inc.**

C. E. "Chad" Davis has been appointed a representative for **Whitinsville Spinning Ring Co.** Mr. Davis will call on the trade in Georgia, Alabama, Tennessee, and part of South Carolina. Lanier Williams has been reassigned to cover North and South Carolina and Virginia.

The **Square D Co.** recently opened a 95,000 sq ft plant in Asheville, N. C. This is the latest of 22 plants in the company's network in the U. S. and abroad.

Charles D. Wright, air filter division, has been named southern regional manager for **American Air Filter Co., Inc.** Mr. Wright will be located in Atlanta, Ga.

John A. Harley has been named sales manager for **Alliance Chemical Corp.** Mr. Harley will make his headquarters in the new office, laboratory, and warehouse in Charlotte, N. C. H. William Rose, Jr., has been appointed technical sales representative for the New England area. Jack Roddy has been assigned to the Charlotte office, and will call on the trade in South Carolina, Georgia, and Tennessee.

Dr. John Gordon Davoud has been named executive vice-president of the **Firestone Plastics Co.** and **Firestone Synthetic Fibers Co.**

Jesse J. Loredo has been promoted to manager of mill surveys for **Whitin Machine Works.** Mr. Loredo succeeds Ralph Lux, who was recently named product manager of cotton machinery. Stephen W. Gifford, Jr., has recently joined the wool and worsted machinery sales department.

Textile Machine Works has announced the acquisition of **Schooler Manufacturing Co., Inc.** The Schooler Co. manufactures wrapping machines, known in the industry under the tradename of "Wrapmaster." The operations will be moved to the Reading, Pa., location.

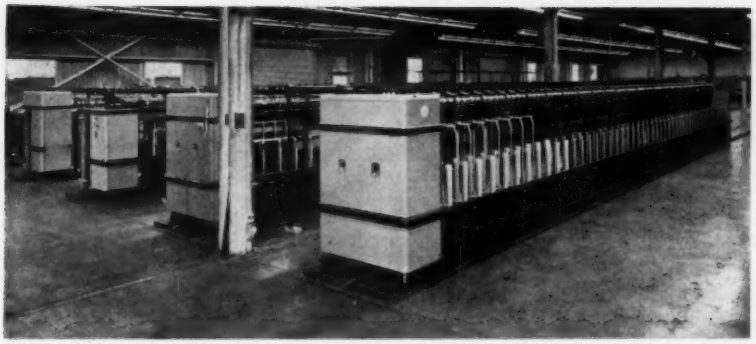
Wlodek L. Ginilewicz has been appointed a supervisor of technical service for **Air Reduction Chemical & Carbide Co.,** a division of Air Reduction Co., Inc. Mr. Ginilewicz will be in charge of technical service to the textile industry, supervising research on textile sizings, coatings, finishes, binders, and related applications.

Expansion plans for the **A. E. Staley Manufacturing Co.'s** chemical sales organization has been announced. Theodore P. Malinowski has been named to head the reorganized chemical sales activity.

John A. Turner, manager of the Chicago district office of **E. I. du Pont de Nemours & Co., Inc.,** has retired. Francis L. Shackleford, Jr., has been named to succeed Mr. Turner. Robert R. Farwell, manager of the New England district sales office of the dyes and chemicals division, has retired. Harold L. Sager has succeeded Mr. Farwell.

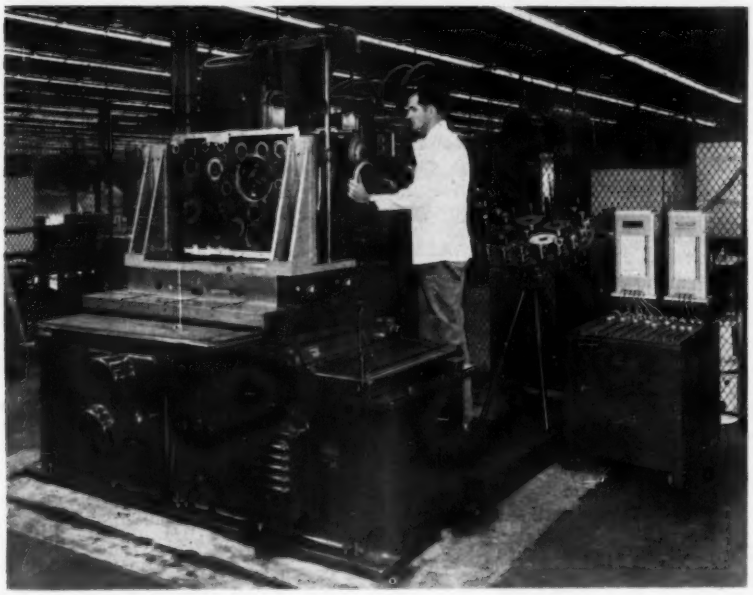
John T. Coleman has been named manager of sales services for the fiber marketing department of **Allied Chemical Corp.'s** National Aniline division. Mr. Coleman will be responsible for coordinating the sales

For further information use Handy Return Card, Page 167



Full production of the Rovematic roving frame (TI for May, 1961, page 171) has begun at the Easley, S. C., plant of **Saco-Lowell Shops.** On September 26 members of the press saw the first four 96-spindle units (above) in various stages of assembly and witnessed formal acceptance of the first frame by a mill official (see page 70 this issue). Expressing satisfaction with the way planning and production schedules have been maintained, Russell A. Graham, executive vice-president of Saco-Lowell, stated that the tooling for the manufacture of this one machine is probably the most costly program ever undertaken by a textile machinery builder—nearly $1 million. The $60,000 jig mill (below) for precision boring of the gear case is typical of the machine tools purchased specifically for building the new roving frame. Automatically controlled, it insures centerline accuracy to within .0002".

PHOTOS BY HENRY ELROD



and production activities of the two nylon fiber producing plants located at Chesterfield, Va., and Irmo, S. C.

Charles C. Gates, Jr., has been named president of **Gates Rubber Co.,** succeeding his late father.

Robert E. Wilson has been named a field representative for **James Talcott Southern, Inc.,** a wholly-owned subsidiary of James Talcott, Inc.

United Merchants Sales, a division of United Merchants & Manufacturers, Inc., has announced the formation of a spun yarn sales department, under the direction of Harold N. Joseph.

A new corporation, **Durafoam Plastics, Inc.,** has been created by Foamade Industries to fill the demand for Durafoam interlining.

Onyx Chemical Corp. has announced the formation of a new division known as the finishes & coatings division. Philip E. MacLean is manager.

The Cleveland Crane & Engineering Co. has established a West Coast Tramrail Division with a plant in Los Angeles, Calif. Karl Pamer has been named manager.

W. K. Shirley has been named sales representative for **Kluttz Rings.**

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SUPPLIER NOTES

(from page 181)

Inc., in the Georgia, Alabama, and western Tennessee territory. Mr. Shirley will make his headquarters in Newnan, Ga.

Gurley and Co., Dalton, Ga., has been appointed exclusive selling agents for the entire U. S. for **American Industries, Inc.** The latter firm imports jute burlap backing and other raw materials, including cotton duck with ramie for the tufted carpet industry.

Gerald J. Sarracino has been appointed general manager of the southern division of **Metro-Atlantic, Inc.**

Supreme Knitting Machine Co., Inc., manufacturers of circular knitting machines, has been purchased by **Singer Manufacturing Co.** Designated Singer-Supreme Co., no change in management is anticipated.

Eric B. Norman has been promoted to the newly created post of general sales manager for **H. W. Butterworth & Sons Co.**

Howard M. Brittain has been assigned to the Atlanta regional office of **Pennsalt Chemicals Corp.**, as a technical service representative. Mr. Brittain will be responsible for assisting textile finishing companies in the southeast.

O. W. Andrews has been appointed to the newly created position of director of marketing services for the chemical division of **Pittsburgh Plate Glass Co.**

Phrix, man-made fiber producer, Hamburg, Germany, has announced the appointment of **Texplant Corp.** as its exclusive representative for the marketing of its fiber products in the U. S.

Mr. Brittain
Pennsalt

Mr. Grendreau
Sandoz

Mr. Bussey
Arnold, Hoffman

Mr. Mitchell
Sandoz

On September 9, W. F. Fancourt Co. formally opened this new three-story plant in Greensboro, N. C. Production facilities of the plant will double the current capacity for output of textile chemicals and will supplement the Philadelphia operation.

Raymond J. Mitchell has been promoted to sales manager for the New York district sales office of **Sandoz, Inc.** Harvey G. Gendreau has been named to succeed Mr. Mitchell as sales manager of the Cincinnati district sales office.

William W. Bussey has joined the sales staff of **Arnold, Hoffman & Co., Inc.** Mr. Bussey will service textile plants in the Georgia area.

Daniel E. Lucas has been appointed eastern regional sales-service manager for the industrial division of **Corn Products Sales Co.** Mr. Lucas is located in the New York office.

Carroll C. Parker has been appointed to the newly created position of sales manager for **Curtis & Marble Machine Co.**

Sjostrom Automations, Inc. has announced the opening of a branch office at 209 E. Stone Ave., Greenville, S. C. Parts for various machines will be stocked and service men will be available from the new address. The operations at Boca Raton, Fla., will be transferred to the new location. Charles L. Tidwell, Jr., is in charge of the office.

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TEXTILE TECHNICAL DEVELOPMENT AND LIAISON OFFICER FOR JAPAN

The International Wool Secretariat invites applications for the post of Technical Officer in its Japanese Branch, Tokyo.

The International Wool Secretariat is an organization established by the statutory Wool Boards of Australia, New Zealand and South Africa for carrying out their global policy of increasing the consumption of wool by means of promotion, market research, scientific research, technical development and liaison with all segments of the wool consuming and distributing industries.

Applicants should have a degree in chemistry, physics, chemical or mechanical engineering or the equivalent as well as several years experience in either research, development or production in the textile industry. Such experience in the various branches of the wool textile industry would be an advantage.

Fluency in speaking Japanese and reading Japanese professional publications is essential. The duties of the Technical Officer will include organizing a technical information and service group to introduce into the Japanese wool textile industry new techniques (chemical and physical) for producing new and improved wool products and for increasing the efficiency of wool manufacturing. The Technical Officer will be required to maintain close contact in English with similar I. W. S. operating groups throughout the world.

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Applicants should apply in writing giving full details of their qualifications and personal background to:

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INDEX TO ADVERTISERS

A

Acme Steel Co. 48, 49
Air Reduction Chemical & Carbine Co., Div. of Air Reduction Co., Inc. ..... •
Aldrich Machine Works 66
Alemite Division of Stewart-Warner Corp. ..... •
Allen Beam Co. ..... •
Allen Sons' Co., Div., Wm. 141
Allied Chemical Corp. National Aniline Div., Fiber Marketing Dept. 46
National Aniline Div. 132
Nitrogen Division ..... •
Semet-Solvay Plastics Div. 131
Solvay Process Div. ..... •
Allis Company, Louis ..... •
American Cyanamid Co., Fibers Div. ..... •
American Enka Corp. ..... •
American Moistening Co. 100
American MonoRail Co., Inc. 98
American Viscose Corp. Fibers Division 102, 103
Anderson Chemical Co., Inc. 13
Anheuser-Busch, Inc. ..... •
Antara Chemicals Div. General Dyestuff Co. 125
Armstrong Cork Co. 20, 21
Arnold, Hoffman & Co. 122, 123
Association of Industrial Advertisers ..... •
Atlas Electric Devices Co. ..... •

B

Bahnson Co. ..... •
Barber-Colman Co. (Textile Div.) 53
Becco Chemical Division 134
Beck Machine Corp., Charles 170
Bemis Bro. Bag Co. ..... •
Bijur Lubricating Corp. 38
Buffalo Forge Co. 57
Buffalo Pumps, Inc. ..... •
Butterworth & Sons Co., H. W. ..... •

C

Carbic Hoechst Corp. ..... •
Carolina Machinery Div., Curlator Corp. 37
Carrier Corporation ..... •
Carter Traveler Co., Div. A. B. Carter, Inc. ..... •
Celanese Corp. of America 64, 65
Central Motor Lines, Inc. ..... •
Chemstrand Corporation (Acrilan) ..... •
Classified Ads 183
Cleveland Tramrail Division, The Cleveland Crane & Engr. Co. ..... •
Clinton Corn Processing Co. 62
Clipper Belt Lacer Co. ..... •
Coats & Clark's Sales Corp. ..... •
Cocker Mach. & Fdry. Co. 156
Cometsa Spindle Co. 177
Corn Products Sales Co. 33
Cotton McCauley & Co., Inc. ..... •
Crompton & Knowles Corp. 39
Curlator Corp., Textile Div. ..... •
Curtis & Marble Machine Co. ..... •
Custom Scientific Instruments, Inc. 170

D

Darnell Corp., Ltd. 174
Dary Ring Traveler Co. 171
Davis & Furber Mach. Co. ..... •
Dayco Textile Products Co. 42, 43
Delta Air Lines 148
Dixie Bearings, Inc. 34
Dixon Corporation ..... •
Dodge Mfg. Corp. ..... •
Draper Corporation 54, 55
Dronsfield Bros., Ltd. ..... •
Duesberg-Bosson of America 175
Du Pont de Nemours & Co., Inc., E. I. (Electrochemicals Dept.) 126, 127
Du Pont de Nemours & Co., Inc., E. I. (Finishes Div.) ..... •
Du Pont de Nemours & Co., Inc., E. I. (Textile Fibers Div.) ..... •

E

Eastman Chemical Products, Inc. Chemicals Div. 120
Eaton Mfg. Co. Dynamatic Div. ..... •
Exact Weight Scale Co. 36

F

Ferguson Gear Co. 164
Fiber Controls Corp. ..... •
Fisher Division National Vulcanized Fibre Co. ..... •
Fletcher Industries 52
Food Machinery & Chemical Corp., Chlor-Alkali Div. ..... •
Foster Machine Co. Electronic Sales Div. 56
Machinery Div. 18
Foxboro Company 112, 113
Franklin Process Co. ..... •
Fulton Cotton Mills ..... •

G

GPE Controls, Inc. 139
Gardner Denver Co. ..... •
Garland Mfg. Co. 181
Gates Rubber Co. 59
Geigy Chemical Corp. Geigy Dyestuffs Div. ..... •
General Dyestuffs Div. ..... •
General Electric Co. Apparatus Div. 24
General Radio Co. ..... •
Gessner Co., David ..... •
Goodyear Tire & Rubber Co., Inc., Chemical Prod. 7
Gray Company, Inc. 40
Gulf Oil Corp. ..... •

H

Harshaw Chemical Co. ..... •
Hercules Powder Co. 60, 61, 136
Herr Mfg. Co. 50
Hubinger Co. ..... •
Humble Oil & Refining Co. 1
Hunter Machine Co., James ..... Second Cover

I

Ideal Industries, Inc. 45
Industrial Dryer Corp. ..... •

J

Jenkins Metals Shops Inc. ..... •
Jenkins' Sons, M. W. 173
Johnson Corp. 140

K

Keever Starch Company ..... •
Kennett Materials Handling Division National Vulcanized Fibre Co. 12
Klauder Weldon Giles Machine Co. ..... •
Kluttz Rings, Inc. ..... •
Koppers Co., Inc. Chemicals & Dyestuffs Div. 117
Filters Dept. ..... •

L

Landis, Inc., Oliver D. ..... •
Laurel Soap Mfg. Co. 140
Leesona Corporation 28
Lestershire Spool Division, National Vulcanized Fibre Co. 179
Lindly & Co., Inc. "See Foster Machine Company" 56
Link-Belt Co. ..... •
Livingston & Haven, Inc. ..... •
Lockwood Greene Engineers, Inc. ..... •
Loper Co., Ralph E. 182
Ludell Mfg. Co. 137

M

Maguire & Co., Inc., John P. 140
Marshall & Williams Corp. ..... •
McBride Co., Inc., Edward J. ..... •
McDonough Power Equipment, Inc. 183
Meadows Mfg. Co. ..... •
Meese, Inc. 182
Merrow Machine Co. 163
Metalexport 14
Mill Devices Co., Div. A. B. Carter, Inc. ..... •
Miller Corporation, Harry ..... •
Minneapolis-Honeywell Regulator Co., Industrial Div. 47
Minnesota Mining & Mfg. Co. ..... •
Minnesota Paints, Inc. 173
Mitchell-Bissell Co. ..... •
Moisture Register Co. 176
Moretex Chemical Co. ..... •
Morton Machine Works 118
Morton Salt Co. ..... •
Mount Hope Machinery Co. 108

N

National Starch & Chemical Corp. 58
National Vulcanized Fibre Co. 12, 179
New York & New Jersey Lubricant Co. ..... •
Nihon Spindle Mfg. Co. 180
Nopco Chemical Co. 110
Norcross Corp. 178

O

Oakite Products, Inc. ..... •
Olin Mathieson Chemical Corp. 135

P

Pabst Brewing Co. ..... •
Parks-Cramer Co. ..... Third Cover
Penick & Ford, Ltd., Inc. ..... •
Perfecting Service Company ..... •
Perkins & Sons, Inc., B. F. ..... •
Pioneer Heddle & Reed, Inc. ..... •
Pneumafil Corp. ..... •
Polymer Industries, Inc. ..... •
Proctor & Gamble Distributing Co. 138
Putnam Chemical Corp. 115

R

Reiner, Inc., Robert ..... •
Reliance Elec. & Engr. Co. ..... •
Reuland Electric Co. ..... •
Rieter Machine Works, Ltd. 6
Robbins & Myers, Inc. ..... •
Robert & Co., Associates, Inc. 26
Roberts Co. 2, 3
Rockwell-Standard Corp., Air-Maze Div. 162
Rohm & Haas Compny ..... •
Royal Worcester Industrial Ceramics Ltd. ..... •
Royce Chemical Co. ..... Fourth Cover

S

Saco-Lowell Shops 106, 107
Sargent's Sons Corp., C. G. ..... •
Schlumberger & Cie., N. 8
Scholler Brothers, Inc. ..... •
Service Recorder Co., The ..... •
Seydel-Woolley & Co. ..... •
Shell Chemical Co. ..... •
Shell Oil Co. ..... •
Simco Company ..... •
Sims Metal Works 32
Singer Fidelity, Inc. 138
Sonoco Products Co. 158
Southern Airways Co. ..... •
Southern Machinery Co. ..... •
Southern Shuttles Div. 15
Southern States, Inc. 10, 11
Southern Textile Works ..... •
Spraying Systems Co. ..... •
Square D Company 35
Staley Mfg. Co., A. E. ..... •
Standard Oil Co. (Kentucky) ..... •
Steel Heddle Mfg. Co. 15
Stewart-Warner Corp., Alemite Division ..... •
Stover Co., Charles G. 183
Stowe-Woodward, Inc. 128

T

Taylor Instrument Companies 116
Tennant Co., G. H. 44
Tennessee Corp. ..... •
Terrell Mach. Co., Inc. 16
Texaco, Inc. 105
Textile Apron Co. 160
Textile Machine Works ..... •
Textile Paper Products, Inc. ..... •
Textile Shield Co. 174
Theiler Corp., H. J. 164
Ton-Tex Corp. 172
Torrington Co., The ..... •
Trust Company of Georgia 30
Tsudakoma Industrial Co., Ltd. ..... •
Tubular Textile Mchy. Corp. 133
Turbo Machine Co. 149

U

Uddeholm Co. of America, Inc. ..... •
Union Steel Products Co. 9
Uster Corporation 63

V

Veeder-Root, Inc. ..... •
Venango Engineering Co. ..... •
Visking Corporation ..... •

W

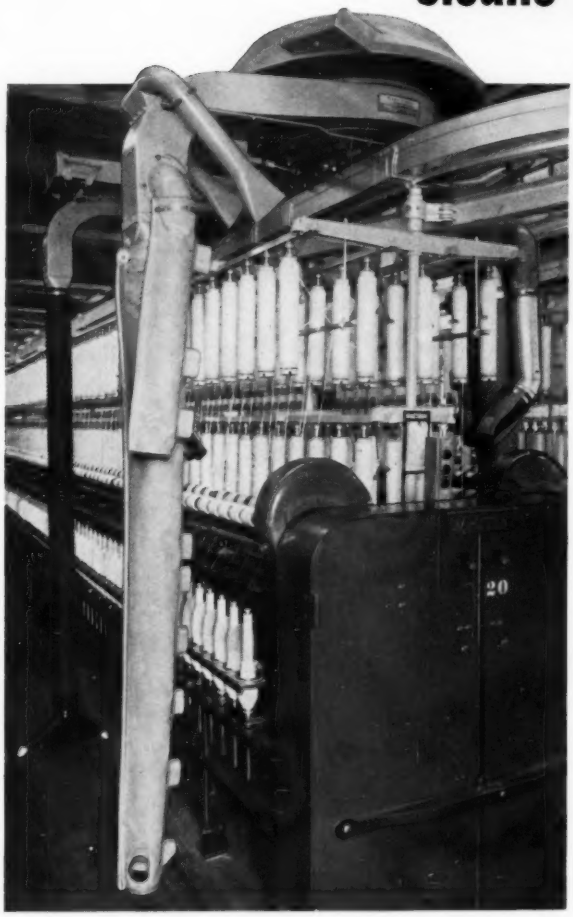
Wagner Electric Company ..... •
Want Ads 183
Ward Steel Company ..... •
Warner & Swasey Co. 150
Watson & Desmond 165
West Indies Chemical Works, Ltd. ..... •
West Point Fdy. & Mach. Co. 166
Westinghouse Electric Corp. ..... •
Wheeler Reflector Co. 51
Whitehead Die Casting Co. ..... •
Whitin Machine Works 41
Whitinsville Spinning Ring Co. 161
Wildman-Jacquard Co. ..... •
Wolfe & Co., Jacques ..... •
Wonalancet Company 172
Wool Bureau, Inc. 183

Y

Young Machine Co., F. A. 171
Young Aniline Works, Inc. ..... •

For further information use Handy Return Card, Page 167

Parks-Cramer FilterBlo cleans with filtered, lint-free air



In spinning yarn under the cotton system, the need to capture as much lint as possible, as quickly as possible, is well known to mill men.

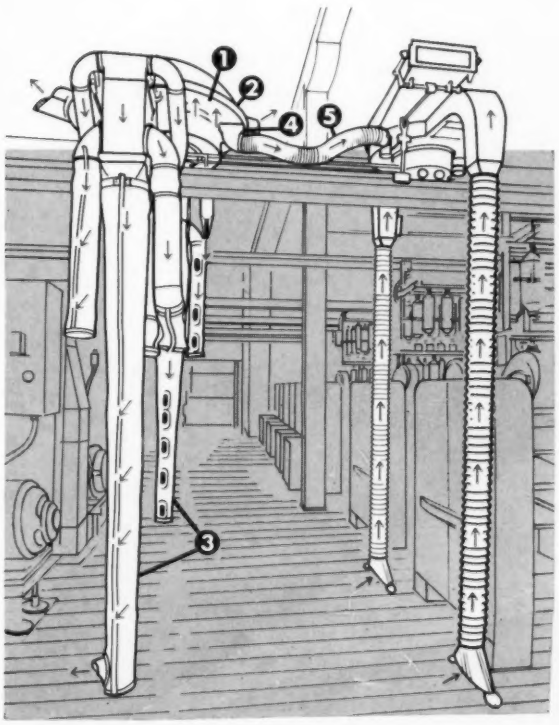
Conventional blowing cleaners do their work with lint-laden air. Lint blown into yarn in process is a cause of slubs, choked trumpets, traveler loading, ends down and yarn imperfections.

Parks-Cramer FilterBlo greatly reduces these troubles by filtering all air as it enters the traveling blower unit. Its filtering action appreciably cuts down the lint content of room air.

Recent controlled mill tests of Parks-Cramer's new FilterBlo disclose data we believe many of our mill friends will want to investigate.

Some examples:

Ends down	24% less
Clearer waste	8% less
Major yarn imperfections	16% less
Yarn breakage in cone winding	35% less



Room air enters FilterBlo through perforated, teflon-coated, stainless steel filter plate (1), located on bottom of rotating assembly. Revolving Up-draft blower (2) sweeps ceiling and overhead surfaces with diagonal air currents. Flexible sleeves with multi-outlets (3) are engineered to fulfill exact cleaning requirements. Air inlet filter is cleaned (4) continuously through connecting vacuum sleeve (5) coupled to TravelVac of either the Long Storage or automatic unloading type.

FilterBlo

... major advance in Traveling Cleaners

Parks-Cramer Company

FITCHBURG/MASS. CHARLOTTE/N. C. ATLANTA/GA.

For Tough Stripping Jobs!

PAROLITE* OFTEN STRIPS MODERN SYNTHETICS COMPLETELY WHERE ALL OTHER STRIPPING AGENTS HAVE FAILED!

PAROLITE* saves time and storage space by accomplishing nearly all stripping of wool and synthetics unassisted.

PAROLITE* is safe and gentle. Though extremely powerful, it will not harm personnel. Stripped cloth is left soft and completely workable.

**Normal Zinc-Sulphoxylate Formaldehyde*

DISCOLITE** (another highly refined sulphoxylate) provides excellent reduction of vat colors at temperatures exceeding 80° Centrigrade, and is highly effective in discharge and vat printing.

***Sodium Sulphoxylate Formaldehyde*

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